

JANUARY 1915

No 109

Issued Every Month

For Free Distribution to Users  
of Machine Tools

HITCHCOCK'S  
**MACHINE  
TOOL LIST**

A Reference Book for Buyers  
of Iron Working Machinery

Published by  
**A. H. HITCHCOCK**  
1220-1235 Caxton Building  
Chicago

# Team Work

Means working well together. In looking for efficient team work on your Gear Cutting, consider this combination.



## **B. & S. Automatic Gear Cutting Machines**

Rugged, — Accurate, — Simple, — 8 sizes.

## **B. & S. Gear Cutters and Stocking Cutters**

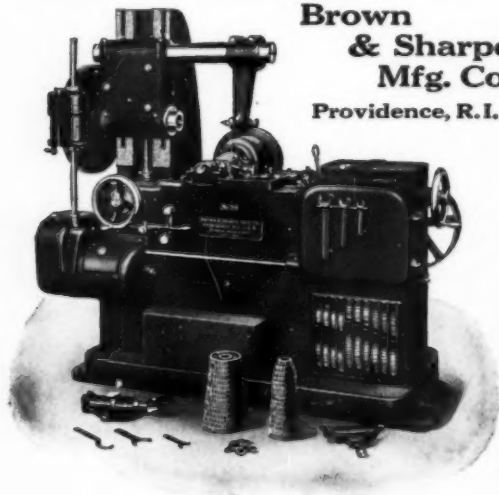
Standard for Accuracy, — Uniform in Temper.

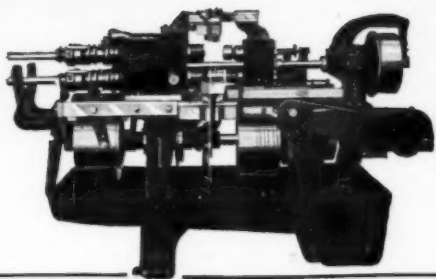
## **B. & S. Cutter Grinding Machines**

Save wasted time from idle cutters, — 5 styles.

*Send for General Catalog showing machinery and cutters.*

**Brown  
& Sharpe  
Mfg. Co.  
Providence, R.I.**





## **Screw Machine Work in One Operation**

Practically every job cut from metal bars can be cut **complete** on the Acme Multiple Spindle Automatic in **one operation**. Sizes,  $2\frac{1}{4}$ " diameter and smaller.

The tools on the Acme work from side and end positions at once on four bars of stock. Therefore the time for completing 8 operations or any number up to 8, is the longest single cut.

Acmes will increase your output per machine, they'll give you accurate work and they'll reduce your cost per piece. Isn't this the method for you?

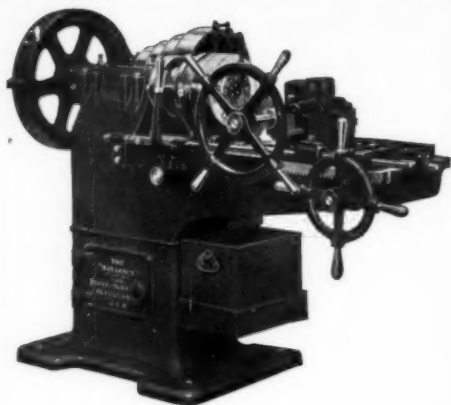
Why not get the actual figures on your screw machine jobs? Send samples or blue-prints for estimates —there's no obligation.

*Catalog 9 for a postal.*

**THE NATIONAL-ACME  
MANUFACTURING CO.**

**SIXTH CLEVELAND CITY**

NEW YORK-BOSTON-CHICAGO-DETROIT-ATLANTA-MONTREAL



## Reliance Bolt Cutters

Built in sizes  $\frac{3}{4}$  inch to 6 inches, Single, Double and Triple, of the most up-to-date design. There is, also, a good reason why the "Reliance" is such a satisfactory machine for accuracy of threads cut, large production and low cost of maintenance, even in the hands of inexperienced labor. A lot of this reason is in the Opening Die Head, and we would like to tell you all about it. Interesting information for the asking.

**The Foote-Burt Co., Makers**  
Cleveland, Ohio

# Let the Geometric Threading Machine Do Your Work

No skill necessary to operate the Machine  
All the skill is *in* the Machine



## Not an Ordinary Bolt Cutter

No cleaner, sharper threads can be turned out on any Screw Machine.

A threading range of from  $\frac{1}{8}$ -inch to 2-inches diameter is possible.

A tapping range of from  $\frac{1}{8}$ -inch to 2-inches, and even up to 3-inches where the pitch of thread is fine.

**Does this cover your needs?**

Write us. We will answer your inquiry promptly.

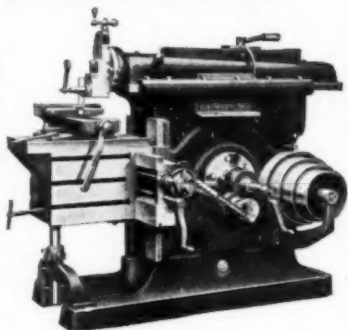
**The Geometric Tool Company**  
New Haven, Conn.

Chicago Office, 547 W. Washington Blvd.

# SHAPERS

12", 14", 16"  
Plain Crank,  
16", 20", 25"  
B. G. Crank,  
either Cone  
Driven or  
through  
Speed Box.

24", 28", 32"  
Geared  
Shapers of  
the Belt Shift  
type.



**The Smith & Mills Co.** Station B,  
Cincinnati, O., U.S.A.

## Davis Keyseaters

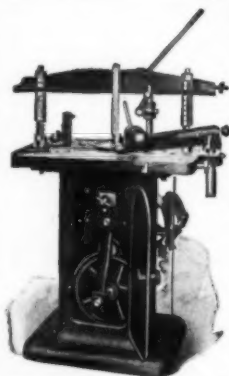
**Stand for Rapid Production**

They meet every requirement as a manufacturing machine and can be economically used on large and small lots. Also adapted for Slotting, Oil-grooving, cutting Keyways in Bell-cranks and similar work.

**Made in two sizes:**

No. 1 Capacity  $\frac{1}{8}$  in. to 1 in.  
No. 2 Capacity  $\frac{1}{8}$  in. to  $\frac{5}{8}$  in.

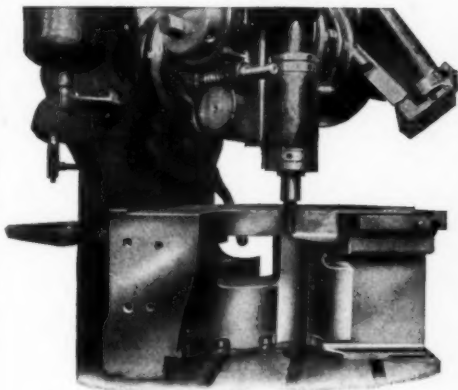
*Write for complete information and copy Treatise on Keyseating, mailed free*



**The W. P. Davis Machine Co.,** 307 St. Paul St.,  
Rochester, N. Y.

**Doing the Work of Three Machines  
with the Cochrane-Bly**

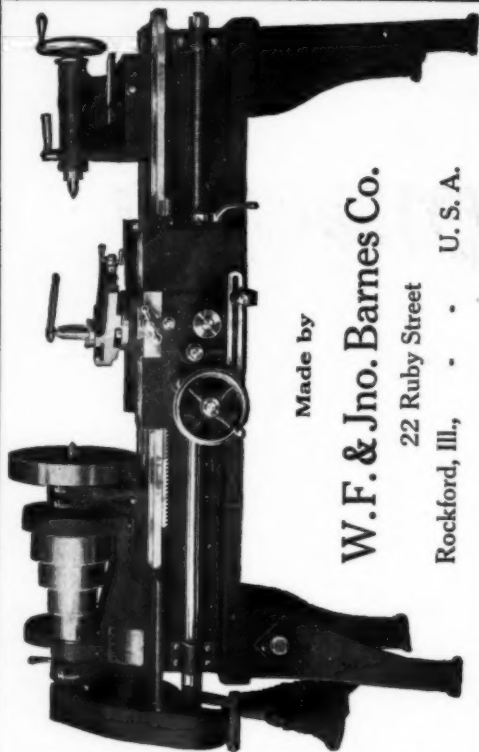
## **Universal Shaper**



**THIS** shows the Universal Shaper completely machining a cast iron mould at one setting, saving 25 per cent in chucking time. Previous methods employed necessitated the use of a milling machine, shaper and a drill press. The work was done so close to finished dimensions, and surfaces so smooth, that very little filing was required. To complete the piece nine distinct operations were performed; *all at one chucking—think of it!*

## **Cochrane-Bly Company**

**Rochester, N. Y., U. S. A.**



Made by

**W.F. & Jno. Barnes Co.**

22 Ruby Street

Rockford, Ill., . . . U. S. A.

## **Barnes 18-Inch Lathe**

Moderate Price

1 $\frac{1}{2}$ -inch Hole in Spindle

4 instant changes feed in carriage. Made in 6, 8 & 10 ft. beds

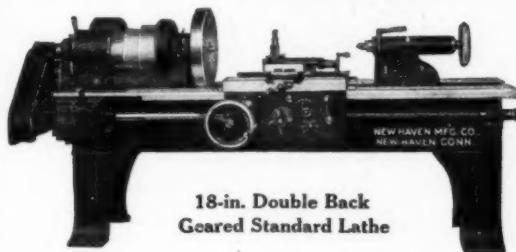
*Send for Circular*



In Price for Quality  
In Quality for Price

# The "New Haven" Lathes

Meet the Demands of Efficiency and Economy



18-in. Double Back  
Geared Standard Lathe

Yes, we make larger lathes, up to 65-inch swing—massive tools they are, too, equipped to meet the most exacting demands of modern manufacturing. But—

## Our Standard Engine Lathes 18-in., 21-in., 24-in. and 28-in. Swing

offer especial value at a very moderate price. They are sturdy, hustling tools, strictly modern in design, construction and equipment. We do not believe they have their equal at the price, though you can easily pay more and get less.

*If you will let us know what your lathe requirements are, we shall be delighted to describe in detail the "New Haven" best suited to your work.*

**New Haven Manufacturing Co.**  
New Haven, Conn.



**Your Lathe Needs**  
**A New Tool Post**

**One of the Modern Multiple Type**

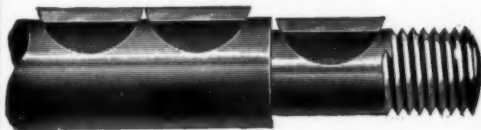
You can no longer afford to use the old style single tool holder.

Give us the size of the dovetail on your lathe carriage and height to lathe center; we will quote you price on a Modern Tool Holder that we guarantee will increase your production, and give you some interesting facts about Lathe Turrets.

No matter what make or size of lathe—we can fit it.

**Fay & Scott,    Dexter, Me.**

# **"Whitney" Keys and Cutters** **For** **"The Woodruff System of Keying"**



**No. 16 CUTTER FULL SIZE**

"Whitney" Keys are made in 114 different sizes and in three grades as follows:

***Regular Carbon Steel Keys***

***Regular Carbon Steel Keys Case Hardened***

***Nickel Steel Keys Heat Treated***

"Whitney" Cutters are furnished in both Carbon Steel and High Speed Steel, so no matter what your requirements, you will find in our line exactly the Key and Cutter to meet your particular conditions.

***Catalog No. 10 Gives Full Particulars***

**The Whitney Manufacturing Co.,**  
**Hartford, Conn.**

**Chains—Keys—Hand Milling Machines**

**Are You Paying Your Mechanics  
For Pushing Hand Drills?**

**“Van Dorn”**

**Portable Electric Drills**

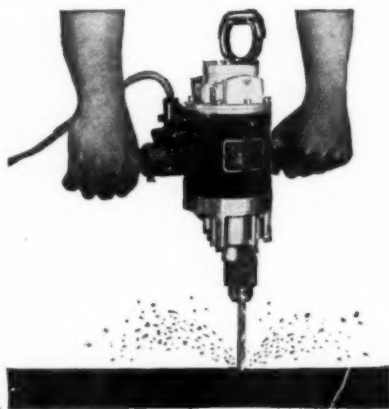
**Save 25 to 80% in Time  
And They Save the Man**

**A Saving on Every Hole You Drill.**

*THINK IT OVER*

**The Van Dorn Electric Tool Co.**

**General Office and Works: Cleveland, O., U. S. A.**



## Portable Electric Universal Drills and Grinders



We manufacture a full line of Universal Drills and Grinders, which may be used on either a. c. or d. c.

All "Standards" are ball bearing—best imported bearings only.

"Standard" motors are insulated and impregnated with a special process—a distinct advance in motor construction.

Order a  
Standard  
on trial  
and write  
for new  
Bulletins  
and  
Circulars  
on Tests.

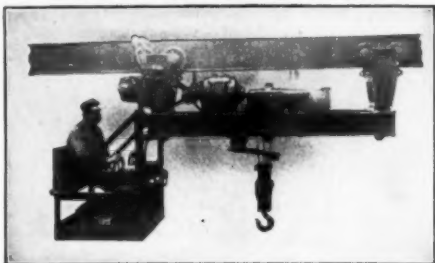


Ask us  
for list  
of users

THE  
**STANDARD**  
ELECTRIC TOOL CO.  
CINCINNATI, OHIO, U. S. A.

New York  
Office:  
30 Church St.

## Mono Rail Hoists and Over Head Track Systems



A 5-ton hoist operated from cab or floor for transferring material from one building to another, unloading cars, general yard work, etc. Mono Rail Hoists and trolleys of all types.

Nothing too large or too small for our careful, prompt attention.

**The Euclid Crane & Hoist Company**  
Euclid, Ohio

## Burnishing Metal Parts

At a Cent on the Dollar



The  
Abbott  
Burnishing  
Barrel

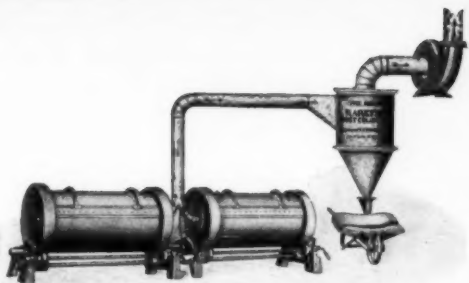
Users of the Abbott Carbonized Steel Ball Burnishing Process say they save from 75 to 99 cents on the dollar, compared with former cost of buffing, and some save even a part of the 100th penny.

Write for free Booklet which fully describes the Abbott Barrel and Abbott Process, and

Send us samples for burnishing

*The biggest money saver on the market for its cost*

**The Abbott Ball Company**  
Elmwood District, Hartford, Conn.



# The Morse Dust Collector

**Is Endorsed by Expert Engineers**



A LIST of our customers includes firms of national and international reputation. Morse Collectors were installed in their plants only when their technical experts were convinced of their superiority. We will gladly send you a list of our many customers at any time.

The Morse is different. Operated on the partial vacuum principle, the air is drawn through the collector, not pushed as in old style machines.

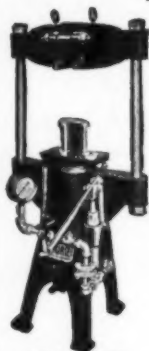
All dust is collected and automatically discharged before the air reaches the fan. This prevents abrasion of fan parts, and prolongs its life indefinitely.

*The Morse means efficiency, economy and better health.*

*Get the full data today.*

**The Knickerbocker Company**  
**Jackson, Mich.**

**Lourie Manufacturing Co.**  
Springfield, Ill.

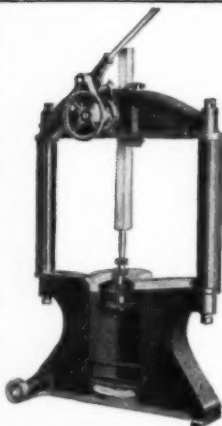


**Type "B"**

Make many styles and sizes of  
Vertical and Horizontal  
**Hydraulic Forcing  
Presses**

*Hand or Power*

Write for  
Circulars  
and  
Prices



**Nos. 26 & 28**

**Two New Models**

of presses just added to  
our line designed to meet  
the requirements where  
power, capacity and ab-  
solutely rigid construc-  
tion are essential factors.

It will pay you to investi-  
gate our complete line of  
Arbor Presses.

**Atlas Press Co.**

313 N. Park St.,  
Kalamazoo, Mich., U. S. A.



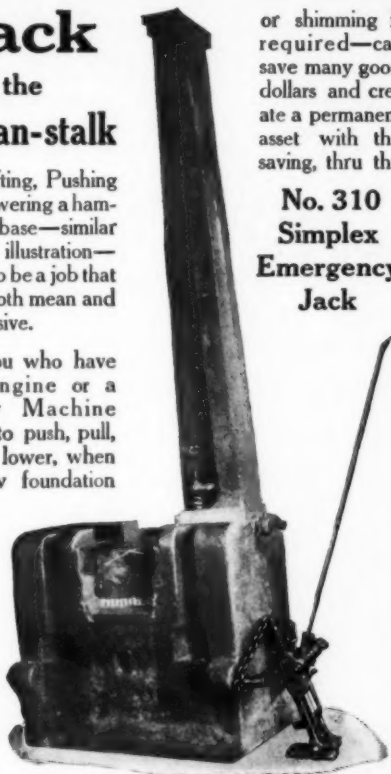
# Jack and the Mean-stalk

¶ Lifting, Pushing or Lowering a hammer base—similar to the illustration—used to be a job that was both mean and expensive.

¶ You who have an Engine or a heavy Machine Tool to push, pull, lift or lower, when a new foundation

or shimming is required—can save many good dollars and create a permanent asset with the saving, thru the

## No. 310 Simplex Emergency Jack



**Templeton, Kenly & Co., Ltd.,** Sole Mfrs.  
1024 South Central Ave., Chicago, Ill.

## Designed For Manufacturing

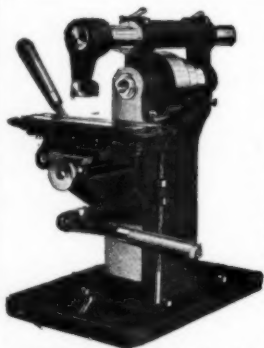


But built good enough for the Tool Room. If you have any doubt about it, just try one. Our two-speed Friction Counter and plain Index Center help you to do the trick.

*Send for circular*

**The Carter & Hakes Co.**  
West Winsted, Conn., U. S. A.

AGENTS—for New England and New York, Hill, Clarke & Co.  
WESTERN AGENTS—Marshall & Huschart Machinery Co.,  
Chicago, St. Louis, Indianapolis.



## Burke's No. 3 Bench Millers

**Are Seasoned Tools**

Our system of tests insures accuracy, and our methods of construction make it permanent. Frames and parts are carried 6 to 8 months, after work begins on them, before the completed tools receive our final O. K., and all parts are finished and fitted with exceptional care.

Longitudinal feed, 6 in.;  
traverse feed,  $3\frac{1}{2}$  in.; vertical  
motion of knee,  $8\frac{1}{2}$  in.; table  
surface,  $3\frac{1}{2} \times 12$  inch.

*Write for Catalog, which also shows larger and smaller sizes.*

**The Burke Machine Tool Co.**  
Conneaut, Ohio

## Put New Life Into Your Machines

You can readily do it by making it easy to change the speeds to suit the work and by backing up the right speeds with ample power. The simplest and surest way to get these results is by applying

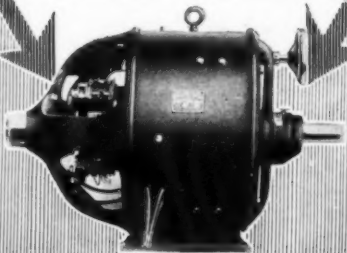
### Reliance Adjustable Speed Motors

To get any speed just turn the hand wheel. The running speeds are unlimited over any range up to 1 to 10. The motors develop full power and will carry heavy overloads at all speeds. They have just the features you need to put new life into your machines and make them turn out more work.

*For details write for Folder 10-L*

(We also build constant speed motors.)

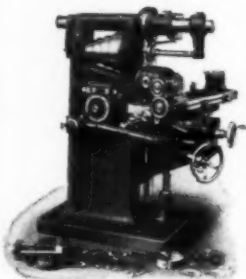
**Reliance Electric & Engineering Co.**  
1050 Ivanhoe Rd., Cleveland, Ohio



## The New Rockford Back Geared Universal Miller

14 Positive Geared Feed Changes. 16 Speeds.

Table, 38"x9". Range, 25"x7½"x18".



Redesigned throughout. Back gears now enclosed in main column. All gears machine steel. All bearings bronze. All feeds automatic. Flanged support stiffens overhanging arm, prevents vibration and increases cutting capacity. Modern to the minute.

*We make others. Put your milling problems up to us.*

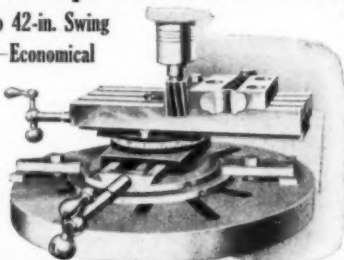
**Rockford Milling Mche. Co.**  
Rockford, Ill.

## Easily Clamped to a Drill Press

From 14 to 42-in. Swing

Efficient—Economical

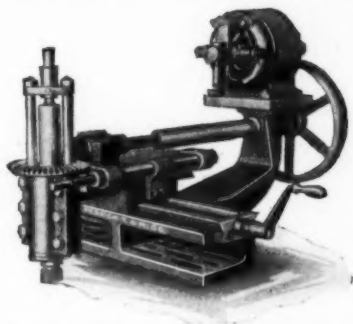
For the  
Diemaker  
Patternmaker  
Repair Shop  
Garage, etc.



The Davis Milling Attachment & Compound Table does 90% of the lighter jobs as well as a \$1,000 machine. Cuts keyseats straight or taper cuts the Woodruff or half moon keyseats perfectly, mills deep grooves or slots, cams, etc. The price, too, is attractive. Write for it—now—while the year is yet young.

**Hinckley Machine Works, HINCKLEY, ILL.**

## Pedrick Portable Milling Machine



If you have ever tried facing small pump and engine valve seats, you know what a mean, time-taking job it is. Mostly hand work and not too accurate when finished.

Here is a machine that is easily set up without smothering the job and which does true, accurate milling. When motor driven as shown in the cut, it is a handy portable unit that may be used for any number of purposes. Hand and belt drives are also applicable.

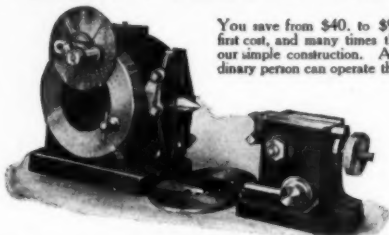
The machine weighs less than 200 lbs., but the construction is strong and above all, *durable*. Half your time isn't spent making repairs to small gears and weak parts.

While thinking about it, send for our bulletin which tells more than we can here.

Remember us for Portable Machinery, Cylinder Boring Bars, Crank Pin Machines, Pipe Benders-all new design and modern.

**Pedrick Tool & Machine Co.**  
3644 N. Lawrence St., Philadelphia

## DICKOW'S 10-Inch Universal Index Centers Greater Profits for You



You save from \$40. to \$90. on first cost, and many times that by our simple construction. Any ordinary person can operate them.

**Price Only \$85 Net** F. O. B. Cars Chicago

*Sold by all dealers. Write today.*

**Fred. C. Dickow, 35 So. Desplaines St., Chicago, Ill.**

## Let Us Help You

**Reduce Your Costs on that Work**

We are specialists in time and labor-saving devices, and in their practical application. Send us blue-print or sample of your work for tool lay-out

and time estimate. We will send you on approval the appliances needed to secure the best results with the least outlay of time and labor. Try us out; we have helped others.

*This is a good time to perfect tools and methods.*

*Send B-P today.*

**PRODUCTION**

**ESTIMATES**



**DEMONSTRATIONS**

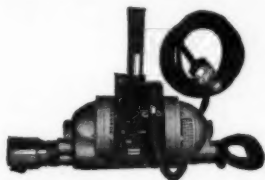
**SPECIALISTS**

**J. R. STONE  
TOOL & SUPPLY CO.**

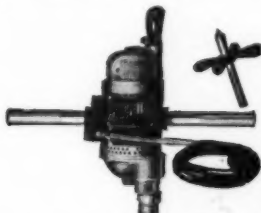
24 Goebel Bldg.,  
Detroit, Michigan

# Universal Motor Drills

For Use On Either Current



This drill is made in 3-16",  $\frac{1}{4}$ ",  $\frac{3}{8}$ " &  $\frac{1}{2}$ " size. Gears run in grease. Motor air cooled, and is made to stand hard service. Sent on trial.



## 0 to $\frac{7}{8}$ Universal Drill

The motors used in these drills are Westinghouse motors, and operate on 25, 30, 40 or 60 cycle. 110 or 220 volts.

**The U. S. Electrical Tool Co.**  
Cincinnati, Ohio

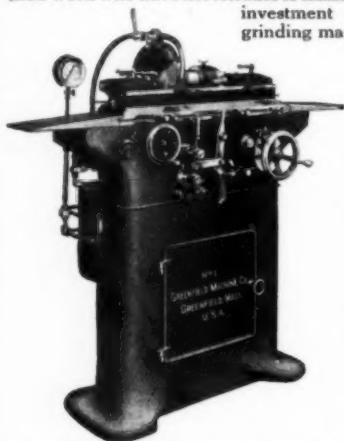
NEW YORK, - 50 Church St. CHICAGO, - 9 S. Clinton St.  
BOSTON, - - 12 Pearl St. ST. LOUIS, 511 Commercial Bldg.

Stock carried at branch offices.

ECONOMY in cost of installation.  
ECONOMY in production.

The *Greenfield*  
**Plain Grinder**

offers both to the maker of small cylindrical parts. It is now more profitable to grind than to finish accurately in any other way and this machine with its low cost will enable many manufacturers to grind their work who have not felt able to make the necessary investment in expensive grinding machines.



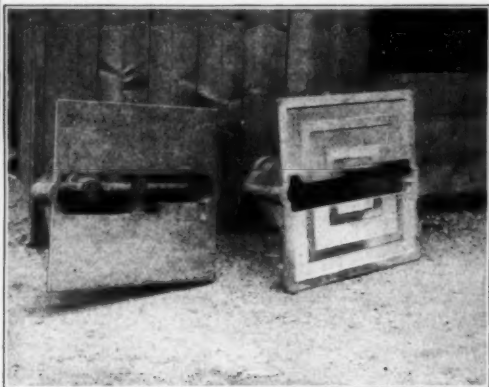
Takes  
13½ inches  
between  
centers.

Swings  
5 inches.

Get in touch with us. Let us know about the small work you grind or would like to grind. Better get details of this grinder anyway.

**Greenfield Machine Company**  
Greenfield, Mass.





## It Pays to "Make" Work for a Gardner Disc Grinder

The illustration above shows a casting which has been altered so that it could be surfaced on a Gardner Grinder. In its original form as shown at the left the area was too great for Gardner Grinding. Formerly a boring mill was used, three hours time being required to get a good surface.

The pattern from which this casting was made has been changed to give a casting as shown at the right. The area to be machined is reduced about one-half and the piece is now surfaced on a Gardner No. 24 in 6 minutes. As a further result of this alteration enough metal is saved on one casting to Gardner Grind about four castings.

There are hundreds of cases of flat surfacing operations where a slight change in the piece has rendered it suitable to Gardner Grinding finish. Outputs have been increased 5 to 50 times. Look over your work with a Gardner in mind.

*Get our free literature.*

**Gardner Machine Company**  
**Beloit, Wisconsin**

Largest builders of disc grinders in the world.

## "The Handiest Rack"

For Pipe, Shafting and Bars



USERS find them as indispensable in the stock room as shelving is in a grocery.

They keep the stock in a fourth the space, where you can see what you have, where you can separate different sizes, where you can get at it easily and quickly. They save space, time, fingers and toes, and are so inexpensive.

Order some of "The Handiest Racks," and while invoicing or counting your bar stock, put it up in tidy shape. You will wonder why you didn't do it before.

*Let us tell you more about them and quote our modest price.*

**Wm. S. Yohe Supply Co.**

314 Lincoln Way, West.

Canton, Ohio

## Safety

Recent experiments demonstrate that safety collars are not sufficient protection for the grinding wheel operator, and the use of proper Protection Hoods is strongly recommended. It will pay you to know more about

**Valley City  
Adjustable Protection  
and Exhaust Hoods.**

They are applicable to any make of machine. Write today for circular and quotations.

**Valley City Mche. Wks.**

Campau & Fulton Sts.  
Grand Rapids, Mich.

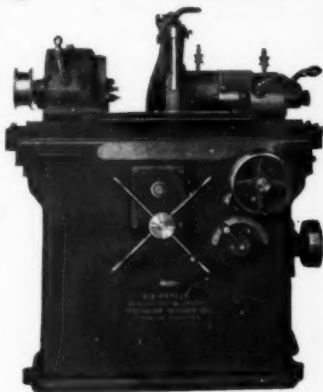


## A Manufacturing Machine of Large Capacity

# Fitchburg 6-15 Grinder

One that because of the power and rigidity embodied in it has a commercial accuracy and rapidity of production guaranteed beyond that of any machine of equal wheel capacity.

This machine affords ease and economy in operation because of its **Centralized Control**.



Its limits are 6"x15" work for straight or taper cylindrical grinding. Dead or live centers can be used—made in two styles. It can show you a marked decrease in floor space now required.

Durability and accessibility are made facts by its design. Details as given in our catalog will convince you.

*Would you let this chance for lower grinding costs pass by? Write*

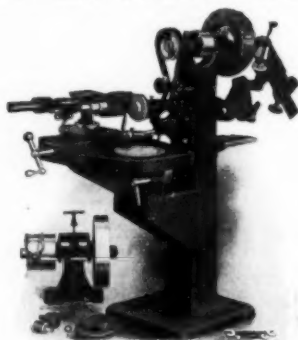
**THE FITCHBURG GRINDER CO., Fitchburg, Mass.**

**This is An Inexpensive**  
**Cutter, Reamer and Drill Grinder**

**It has Generous Range and Capacity**  
**The Price is Within Your Reach**

**Don't delay—look it up now!**

**Particulars, prices, etc., sent on request.**



**Style BX**

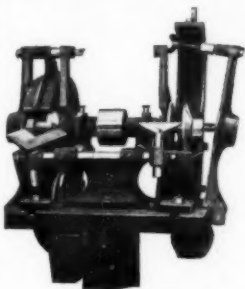
**We also make**

**Drill Grinders—Surface Grinders—**  
**Lathe Center Grinders—Universal**  
**Grinders—Tool Grinders—etc.**

**Wilmarth & Morman Co.**

**1185 Monroe Ave., Grand Rapids, Mich.**

# You Can Use One



PATENTED

The Guard  
that Guards  
both Men  
and Pay-roll

## Partridge Heavy Duty Grinder with Adjustable Guards

¶ Built for service and protection. Protects both Men and Pay-roll. Protects other machines.

¶ Will stop the Wheel in case it breaks. Makes changing of guarded wheels easy. Guards are adjustable to follow wear of wheel both top and bottom.

¶ Write for data regarding a grinder guard as safe as can be made.

We know its worth and want you to know—now

*Get ready for the 1915 Boom!*

### E. O. Partridge

2039-49 W. Lake St.,

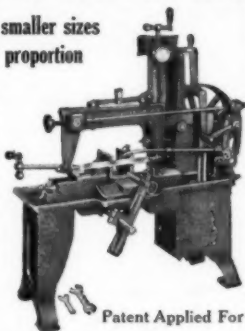
Chicago

## Only 10 Minutes to Cut 6-in. Steel

**The Marvel No. 4 cuts smaller sizes  
of cold rolled steel in proportion**

Cuts on the draw stroke and lifts free of the cut on the return. A graduated feed wheel gives any desired pressure on the saw blade.

Machine stops automatically when piece is cut off, and can also be set to stop at any desired depth in the cut. It embodies speed, accuracy and expert workmanship. We also make other hack saws, punches and shears.



*Write for Circulars*

Patent Applied For

**Armstrong-Blum Mfg. Co., 341 N. Francisco Ave.  
CHICAGO, ILL.**

## Soon Pays For Itself In Saving Costly Material

**It Has No Equal in the Tool Room**

PETER BROS.' ABRASIVE CUTTER is a ball-bearing machine that cuts high-speed and other hardened steel, combination metal and wood, taps, drills, reamers, brass and steel tubing, tees, channels, etc., with a thin, clean, very rapid cut. Doesn't draw the temper, saves grinding, saves time, and saves much valuable material.

**8" Size, \$16.50, with C. S.**

Splendid for tool room. Cuts high-speed steel up to  $\frac{1}{2}$ " square.

**12" Size \$42, with C. S.**

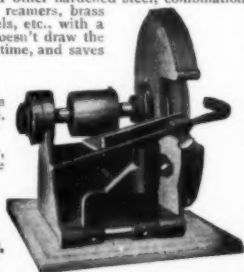
Cuts up to  $2\frac{1}{2}$ " diameter, round or square, at any angle up to 45 degrees.

**15 Days' Free Trial**

**Write us or ask your dealer**

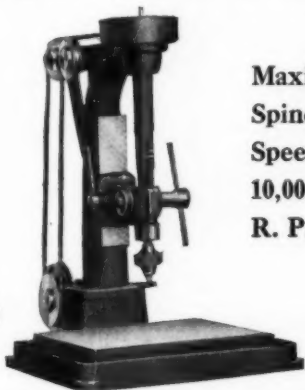
**PETER BROTHERS MFG. CO.**

**115 Railroad St., Algonquin, Ill.**



# Save Money

with this  
**High Speed Drill**



Patents  
Pending

Maximum  
Spindle  
Speed  
10,000  
R. P. M.

**Double Your Production on Holes  
up to  $\frac{3}{8}$ " in diameter**

This machine is carefully and accurately built to give the greatest service. Equipped with Hess Bright Ball Bearings throughout.

*Ask for Bulletin No. 502*

**Leland-Gifford Co.**  
Worcester, Mass., U. S. A.



## Mechanics' Standard 14-Inch Drill

A Serviceable Tool  
At a Low Price

**50%** of the work usually done with a 20-inch drill can be done faster and more easily on the Mechanics' Standard 14-inch. It is an unusually serviceable tool for the cost. We also make the full line of the well-known

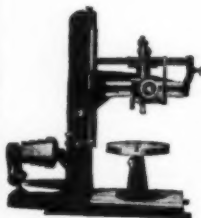
**Mechanics' Drills**  
including 2, 3, 4, 5 and 6-spindle Gangs and 14 to 36-inch Standard Uprights.

*Let us have your inquiry*

**ROCKFORD MACHINE TOOL CO., - Rockford, Ill.**  
Manufacturers of Planers, Shapers and Mechanics' Drills.



A Radial Drill that will not act as freely as the eye is not a perfect tool.

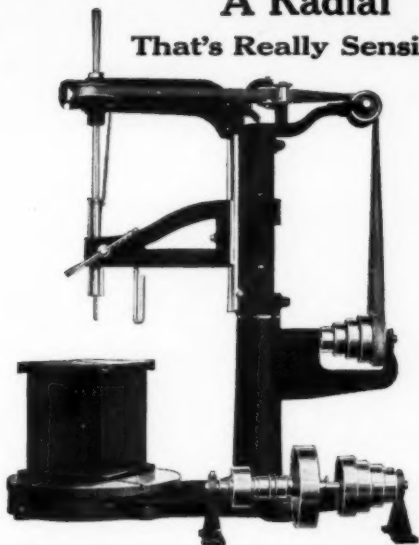


The New Gang Radial Drill  
Catalogue ready for mailing

**THE WM. E. GANG CO.**  
Cincinnati, O.



## A Radial That's Really Sensitive



### **A Sensitive Drilling Machine, with the Reach or Range of a Radial, for High-Speed Drilling in Bulky Pieces**

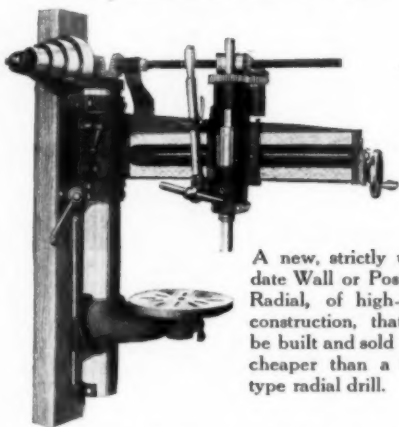
It drills to the center of a 60-in. circle throughout a length of 84 inches. It drives to their highest efficiency high-speed steel drilling tools up to  $\frac{3}{4}$  inch. It is particularly adapted to work where most of the holes to be drilled, reamed or tapped are under  $\frac{3}{4}$  inch, with ample power to drive high-speed steel drills up to 1  $\frac{1}{8}$  inches. Has our well-known patented single-belt, gearless power transmission, with ball bearing pulleys. Both the drilling head and table are equipped with ball bearings.

*Particulars, and our Feed and Speed Chart, Free. Ask for Both.*

**The Henry & Wright Mfg. Co.**  
760 Windsor St., Hartford, Conn.

## *Just The Thing*

For Bridge and Boiler Shops, Garages,  
and Machine Shops having a wider  
range of drilling than can be handled  
to advantage on the upright drill press.



A new, strictly up-to-date Wall or Post-type Radial, of high-grade construction, that can be built and sold much cheaper than a floor-type radial drill.

This really is a 2-in-1 tool, combining the service of a 30-inch stationary floor drill with the range and flexibility of a 2½-foot radial. It drills to the center of a 64-inch circle, with a 9-inch up-and-down traverse of spindle. The spindle has a quick return hand lever in addition to the regular hand feed lever. Both radial arm and spindle head can be securely tightened in any position. Furnished with four-step countershaft, with self-oiling bearings, and equipped with all necessary gear guards (not illustrated).

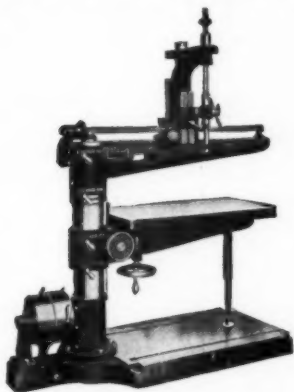
*Delighted to tell you all about it. Will you write?*

**Canedy-Otto Manufacturing Co.**

**Chicago Heights, Ill.**

# Cheaper Drilling in Big Pieces

Is what you get with the Improved  
T. & F. 3-Foot Sensitive Radial



**MOST OF YOUR** drilling is under  $\frac{3}{4}$ -inch, and if you have heavy, unwieldy pieces to handle, this unusually convenient machine is just the tool to save you some money.

Some of our customers have doubled, others have trebled their output with T. & F.'s. They have automatic power feed and lever feed; high speed sensitive or tapping heads that may be used either singly or in combination; adjustments are made in a fraction of a minute.

*Here is the opportunity of cutting your drilling costs  
Ask us for cost records and full particulars*

**The Taylor & Fenn Company**  
Hartford, Conn.

No. 7  
**16" BARR**  
Is an A-1 Drill

---

Weight, 550 Pounds  
Capacity,  $\frac{3}{4}$ -Inch  
Has Belt Tightener

**Price \$70.**

Also Multiple Spindle Drills

---

*Send for descriptive circular*

**Reed Drill Co.**

43 Hammond St., Worcester, Mass.



**The "Economy"**

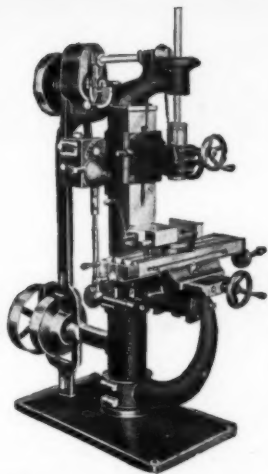
**10 in. Bench Drill**

Built upon the principle of our larger sensitives, it marks a step forward in the capacity of bench drills. Table swings around column, tilts to any angle, and has adjustable gauge for angular drilling. The forged and ground high carbon steel spindle has ball bearing thrust. The patented belt tightener is also a valuable feature. Furnished with 2-step cone and driving pulleys or 3-step cone and countershaft.

*Write for description of this and our  
12 OTHER STYLES of Drill Presses*

**ROCKFORD LATHE & DRILL CO., - Rockford, Ill.**

Also 13, 14 and 16-inch Engine Lathes



## ***How Much Money***

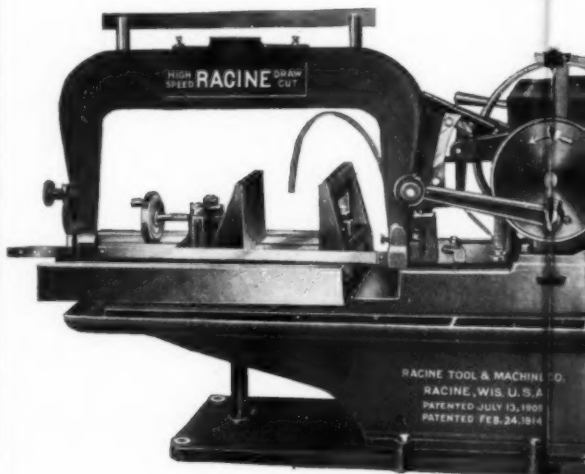
would the saving of 20 to 50% of time in your tool room on hard machining amount to in a year? A good, substantial sum, no doubt.

The great convenience of the Knight Milling and Drilling Machine enables you to put that money into your pocket. It is equal to two or three ordinary machines, as it mills, bores and drills at any angle with only one setting of the work. Made in three sizes. Our Duplex Miller is also a big money saver.

*Illustrated circulars mailed on request. Write us today.*

**W. B. Knight Machinery Company**  
**St. Louis, Mo.**

The Newly  
**Racine High Speed M**  
The No. 9-A Bull Dog



**Speed Governed.**

**Automatic Stop**

**Manufactured**

**RACINE TOOL & MACHINE COMPANY**

ewly Improved

# Metal Cutting Machine

ll Dog Type—Eats Steel



The "RACINE" is the Original,  
Automatic, Positive Lift, Draw  
Cut Metal Cutting Machine.

The "RACINE" is Positive in  
every Action, Simple in con-  
struction, few Moving parts,  
Accurate, Strong, Rigid.

A Machine Tool, not a hack saw.

The "RACINE" is the standard in  
metal cutting the world over.

ic stop.

*Shipped on 30 days' trial.*

*Write today for catalogue.*

Manufactured By

**COMPANY, Racine, Wisconsin, U. S. A.**

# THINK! It Pays

## Riveting Jobs—For Example

If it takes a man 45 seconds to rivet a certain article—  
That equals 80 per hour, or 800 pieces per day.  
That 45 seconds don't amount to much on one piece.

That man can spot weld the same piece in 8 seconds—  
That equals 450 per hour, or 4500 pieces per day.  
And here's where the seconds count.

Figure out the savings in a month, or a year, and you sit  
up and take notice.

**Think** of the 60% to 90% we claim can be saved  
by spot welding.

**Think** how you could cut your costs to meet com-  
petitive prices.

**Think** of our make - good - or - take - back trial  
proposition—

Then *think* if it won't pay to write us for our free bul-  
letin telling about "The Saving Way," and *do it now*.

## Butt Welders—Seam Welders—Spot Welders

*That's our specialty—making welding machines*

No Lease

No License

No Royalty

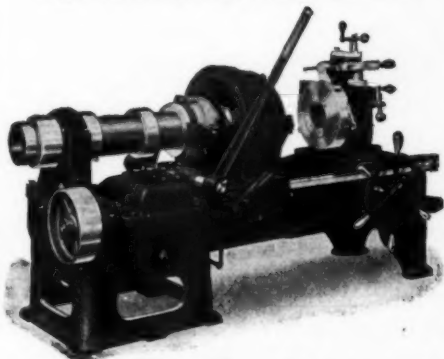
## The Toledo Electric Welder Co.

HARTFORD, CONN.,	CINCINNATI, O.,	CHICAGO, ILL.,
450 Asylum St.	Station A	323 N. Sheldon St.
A.V.B. Cutler, Mgr.		A.M. Searles, Mgr.



# The Value of a Pipe Dream

Is to have it come true on a Bignall & Keeler  
Pipe Threading and Cutting Machine



Our machines have been practical, money-earning realities for over 30 years. There are now 17 styles and sizes, enabling you to make a selection exactly suited to your needs.

Every one of the 17 is equipped with the Peerless Quick Adjusting Mechanism, an exclusive feature. Quick and reliable adjustments may be made to the thousandth of an inch. Capacities range from  $\frac{1}{4}$ -in. to 18-in. pipe. The nipple holders will not injure threads; tempered steel chuck jaws are readily sharpened without drawing temper.

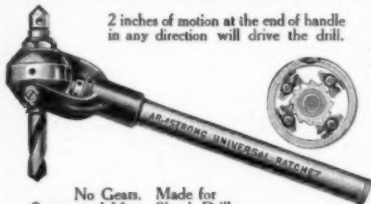
B. & K.'s are built for strenuous service, and they stand up to it, year in and year out.

*Asking for information won't obligate you at all*

**Bignall & Keeler Mche. Works**  
Edwardsville, Ill.

## The Armstrong Universal Ratchet Drill

Has often earned its cost ten times over on one job by saving delay and expense of disconnecting heavy machinery.



2 inches of motion at the end of handle in any direction will drive the drill.

We make a complete line of Ratchet Drills:

Short Head,  
Packer,  
Weston,  
Reversible

All Sizes

No Gears. Made for  
Square and Morse Shank Drills.

*Catalog for the asking*

**Armstrong Bros. Tool Co.**

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.



## Allen Safety Set Screws



Send for circular No. 13 and sample screws (for testing).

**ALLEN MFG. CO., - Hartford, Conn.**

# STAMPINGS

At a lower cost than those turned out in your own sheet metal department. We have no idle machinery eating up profits or overhead—as is the case in your plant if you haven't enough work to keep the machines busy all the time.

**G.P. & F. Service**  
Knowing How Since '81

Places at your command 15 acres of floor space devoted to sheet metal work—a great force of experts, specialists in their line—and our experience of 34 years in producing *quality* work in large quantities for manufacturers in diverse industries.

Send for estimates on stamping, drawing and spinning in brass, copper, aluminum, tin, monel sheet and steel—or Porcelain Enameling, Japanning, Tinning, Hot Galvanizing, and job work of any description.

*Send sample or blue print*

Do you know whether or not some part you are casting could be produced cheaper by stamping?

**Geuder, Paeschke & Frey Co.**

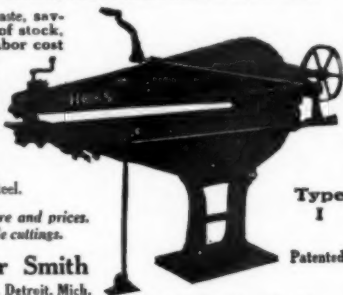
1321-1700 St. Paul Ave.

MILWAUKEE, WIS.

# "Quickwork" Rotary Shear

Cuts any Kind of Irregular Curve of 1½-inch Radius or More, without Cutting in from Side

It cuts without waste, saving 10 to 40% of stock, and reduces labor cost from 75 to 90%. Leaves the metal flat, with true edges. Hand or power drive, instantly interchangeable and three speed changes. Sizes to cut up to ¾" steel.



**Type  
I**

Patented

Send for literature and prices.  
Ask for sample cuttings.

**H. Collier Smith**

815 Scotten Ave., Detroit, Mich.

Write for Catalog of "Quickwork" Metal-Working Machinery



## A Wonderful Combination In Riveting

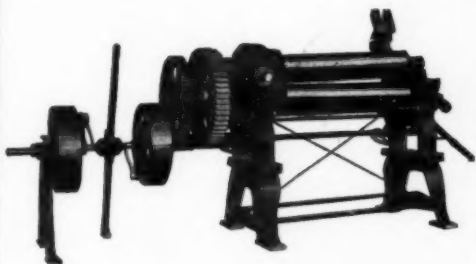
- |   |                    |   |
|---|--------------------|---|
| { | <b>Speed:</b>      | one rivet per second.   |
|   | <b>Uniformity:</b> | each rivet headed with same degree of tightness or looseness as desired.              |
|   | <b>Finish:</b>     | perfectly formed rivet heads, highly polished surface, no hammer or tool marks shown. |

Grant Noiseless Rivet Spinning Machines, are the only machines built that will accomplish the above.

*Catalog?*

**The Grant Mfg. & Machine Co.**  
C. E. Station, Bridgeport, Conn.

Punches—Shears—Bending Rolls  
**Beloit Bending Rolls**



**Built in eighteen sizes**

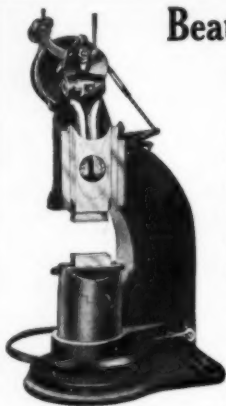
Slip Roll Type with Double Back Gearing. Require minimum of power for operation. Quick cam raising lever. Convenient and strong. Friction clutch drive and reverse for quick handling of material.

We manufacture a complete line of punching and shearing machinery in both power and hand tools, also light and heavy duty bending rolls. We do not overrate the capacities of our machines.

*Write for catalogue and prices*

**Slater, Marsden & Whittemore Co.**

**Box 444, Beloit, Wis.**

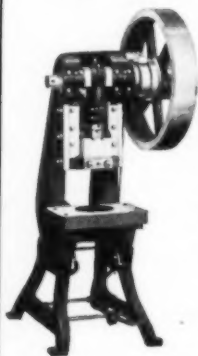


## Beaudry Champion Hammers

Occupy small floor space;  
will handle varying thick-  
nesses of stock without re-  
adjusting; quick and direct  
acting and always under  
perfect control.

*New Catalogue just out  
Ask for it*

**Beaudry & Co., Inc.**  
141 Milk St., Boston, Mass.



## Consider Earning Capacity

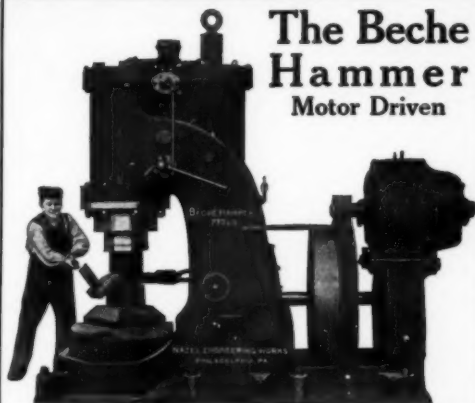
As well as price  
and you will buy

HIGH DUTY  
**ROCKFORD**  
PUNCH PRESSES

Power is concentrated into  
doing work **Quickly and  
Cheaply**. Friction is cut  $\frac{1}{2}$   
and they run at hi-speed. You  
get more work at less cost.

*Write today for details.*

**The Rockford Iron Works**  
Rockford, Ill.



# The Beche Hammer

Motor Driven

**The Heaviest, Most Powerful, Efficient  
and Economical Hammer of Its  
Size on the Market.**

*Hammer and Compressor Combined, No Piston  
Rods, Springs, Straps or Cushions.*

**Simple—Durable—Reliable**

Powerful, non-bounding, squeezing blow. Positive, flexible control. Long stroke. Variable blows at will. No adjustments. Dies at any angle. Belt drive, no countershaft. Motor drive, geared direct.

**Sizes and Efficient Capacities of Beche Hammers**

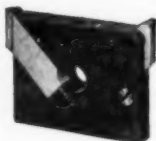
No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
2" dia.	4" dia.	5" dia.	7" dia.	8" dia.	9" dia.

*Write for Catalogue and Prices*

**Nazel Engineering & Machine Works**

Sole Builders for United States and Canada

5th and Luzerne Sts. - - Philadelphia, Pa.



## The Production Boss

### "Don't Care A Cuss"

What make or kind of tool he uses—he wants **SERVICE**; he must have **continuous PRODUCTION**.

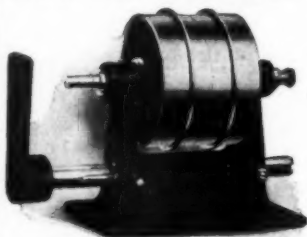
**KELLY Adjustable Boring Tools and Floating Reamers** give just the service he wants, or they are returnable at our expense.

*Ask for Catalog H., our NEW ONE.*

**THE KELLY REAMER CO.**  
CLEVELAND, OHIO, U. S. A.

C. W. Burton Griffiths & Co., London, English Agts. 40 Domestic Agencies

## This Tapping Machine Now Has Greater Capacity



**Burke's**  
**No. "D" Taps**  
 **$\frac{5}{8}$ " Holes**  
**in**  
**Horseshoe**  
**Steel**

BUILT throughout with exceptional care, our several sizes give service in proportion. Accurate, rapid and convenient, they give solid satisfaction. No. "D" sells for \$35.

*Send for details today.*

**The Burke Machine Tool Co.,** Conneaut, Ohio



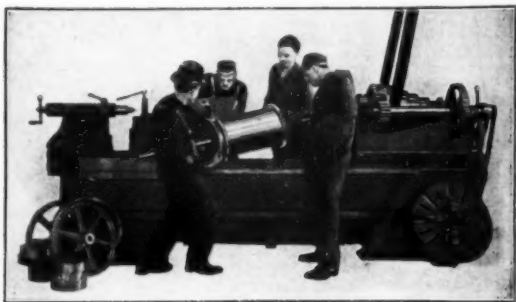
# Sure Your Books are Right

**BUT—  
If your  
“Cost” item  
for 1914  
was too  
heavy, take a  
walk thru  
your shop.**



**DO you  
find there  
“The Handiest  
Tool,”  
saving the  
time and  
drudgery of  
several men?**

Or do you find conditions there like the picture below?



If so, this is a good time to stop the use of costly and unsatisfactory brute force. “The Handiest Tool in the Shop” Portable Floor Crane and Hoist is made in several regular and special sizes; also furnished with double gearing, when desired, at a very small extra cost.

*Write for Catalog “E-8,” which tells the whole story*

**The Canton Foundry & Machine Co.**  
Canton, Ohio



## Find Out!

### Vulcanized Fibre for Machine Parts

may be much better and cheaper  
than the materials you are using,  
and it's worth investigation.

*Let us figure on these parts for your machines:*

Gears  
Frictions  
Washers

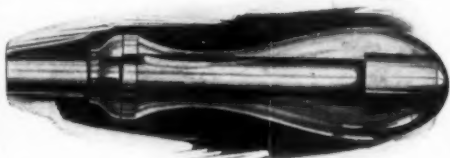
Bushings  
Thrust Washers  
Guide Collars

Discs  
Handles  
Etc., Etc.

*Or send us blue prints or samples of special parts.*

Write for Catalog, which tells the story of the original Vulcanized Fibre and its uses, and contains price list on stock parts, sheets, tubes and rods.

**American Vulcanized Fibre Co.,** Wilmington, Delaware.



### Quick Action

This is what we call this new Machine Handle. Attached to any power tool, especially the heavier types; adjustments are made with more speed and less effort.

All kinds of standard and special Handles from steel for power tools and similar purposes.

*Send for Catalogue and prices*

**The Cincinnati Ball Crank Co.**  
Oakley, Cincinnati, Ohio

# Terrell's Steel Lockers

## Are a Good and Permanent Investment

Employees must have receptacles for their clothes and personal belongings. The first natural question is, shall they be of steel or wood?

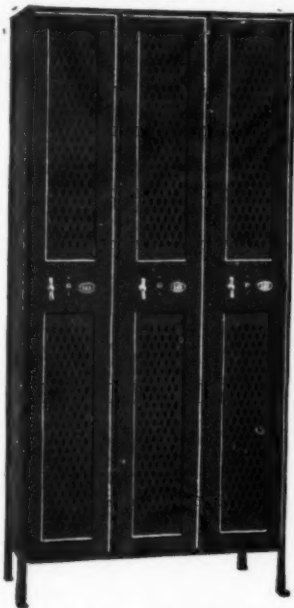
Many people have the erroneous idea that steel lockers are too expensive. True, their first cost is somewhat more than that of wood, but so little more that wood does not compare with steel as a permanent investment.

Terrell's Steel Lockers occupy less space; they never break, wear out or need repairs; they are not inflammable; are slightly and sanitary; and, being built on the unit system, they always can be moved or rearranged to meet changing requirements.

Then they increase the *esprit de corps* among your workmen, when you provide them with conveniences with which you yourself would be content—conveniences, too, which really cost you less money when you consider durability, repairs, space, fire hazard, etc.

### Just Ask Us

about them. It will put you under no obligation. We can adapt our system to your needs, and, we believe, to your ideas of cost.



*Drop us a line. Very glad to discuss it with you.*

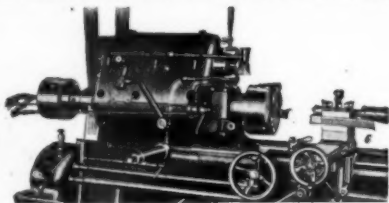
## Terrell's Equipment Company

Hall & Division Sts., Grand Rapids, Mich.

Also ask about our Steel Bins, Shelves and Racks.

## Hannifin Air Chucks

Increase Production 10% to 100%



### Our 3-Jaw Aero Universal Chuck on Large Turret Lathe

They can be applied to any of your machines, increasing production from 10 to 100 per cent on all kinds of work of either regular or irregular shape. Made in various styles and sizes, all combining simplicity, durability and efficiency.

*Sent on approval. Write for description and trial offer.*

**HANNIFIN MFG. CO.,** 621-25 S. Kolmar Av  
**CHICAGO**

## What's Your Tapping Problem?

No Matter How Intricate—

THE "M. E. C." COLLAPSIBLE TAP  
will solve it and save you time and money.

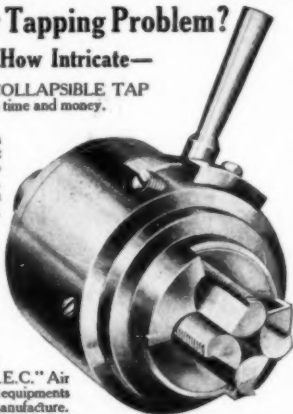
Made in 11 sizes from  
15-32 in. to 3 in. straight  
threads, including  $\frac{1}{8}$  in. to  
24 in. iron pipe sizes.  
We will gladly send you  
one on 30 days' approval.

Ask for catalog L.

**Manufacturers  
Equipment Co.**

169 No. Jefferson St.,  
Chicago, Ill.

We also manufacture various  
styles and sizes of "M.E.C." Air  
Chucks & furnish complete equipments  
of tools for brass & iron manufacture.



# ***For Cleaning***

**New or Old Small Metal Parts  
Quickly — Cheaply — Effectively**



For removing oil, grease and chips from newly made metal parts, for case hardening, plating or assembling, and for cleansing old parts while overhauling machines or motor cars, the

## **Gray & Prior Soda and Potash Kettles**

offer the simplest and cheapest effective method.

A solution of sal soda at about a cent a gallon, a Bunsen gas burner to bring it to a boil, the immersion of the parts for a moment in the boiling liquid, and out they come entirely free from dirt, and so hot that they dry in a minute or two, without danger of rusting.

Cost less than steam kettles, with their pipes, valves and fittings; cheaper and safer than gasoline; and as they require no permanent pipe fittings, they may be moved about as desired.

**Made in 10 and 30 Gallon Sizes**

*Can make prompt shipment. Write for folder.*

**Gray & Prior Machine Co.  
Hartford, Conn.**

# Pattern Shop Machinery

Special Prices if you refer to this ad.



## Band Saws

Chicago No. 00 27 in. Wheels  
 " No. 0 32 " "  
 " No. 1 36 " "



## Saw Tables

Chicago No. 5 Stationary Table  
 " No. 9 Tilting Table  
 " No. 10

Boring attachment if wanted.



## Jointers

8 in., 5 and 6 ft. tables and guard.  
 12, 16, 20, 24 and 30 in., 7 ft. tables  
 and guard.

Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

## Chicago Machinery Exchange

1214-1228 Washington Boulevard, Chicago

## Three Strong Points of Chuck Service

Adaptability—Dependability—Durability



Are  
 found  
 only in  
 Sweetland  
 Service

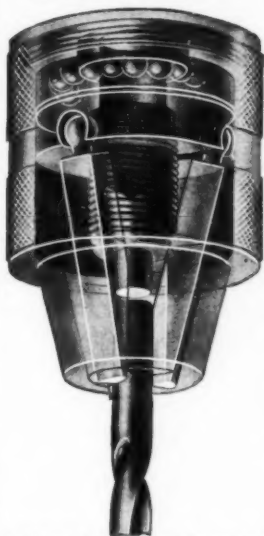
Let us  
 show  
 you

## The Hoggson & Pettis Mfg. Co.

New Haven, Conn.

# The New Britain Drill Chuck

**Hand Operated      Ball Bearing**



This Chuck needs no wrench to operate it. In fact there is no provision made for a wrench excepting in the largest sizes, and it is not necessary to use the entire hand to bring the jaws down tight on the drill.

The Chuck is **self tightening**, and may be operated by thumb and forefinger.

Just bring the jaws down on the drill sufficiently to keep it from dropping out, **and then start drilling.** The harder the pressure on the drill, the tighter the grip of the jaws. **And it releases just as easily.**

*Let us demonstrate it to you.*

**Union Manufacturing Co.**

New York Office  
26 Cortlandt St.

New Britain, Conn.

Makers of a Complete Line of Chucks

# Well Dressed Letters

## Have the Greatest Selling Force

The days of the showy salesman are about over, and the days of the shabby salesman have never dawned.

The modern efficient salesman is a man of force, and his well-ordered apparel reflects the well-ordered brain.

## Steel Die

# Embossed Stationery

## Is to the Letter what Good Clothes are to the Salesman

It does not lend itself well to the circus-poster style, nor is it ever shabby. It has that rich, neat appearance which at once gives the impression of solidity behind it.

You cannot use well-dressed salesmen to see *every* prospective customer. It is left to your *letters* to make the desired impression in scores of places where an order is possible.

And what is there so impressive for that purpose as Steel Die Embossed Stationery?

*It is probably not as expensive as you think  
Write for free Specimen Book and prices*

## American Embossing Co.

192-96 Seneca St., Buffalo, N. Y.



# Tucker's Safety First



Closed

**Oil Hole Covers**  
Require but one hand to pump in the oil. Adapted to all kinds of mechanism having oil holes leading to a bearing.

*Send for Catalogue  
Oil Hole Covers  
and Compression  
Grease Cups*



Open  
Style A



Style C



Style F, Drive



Style D



Open



Closed

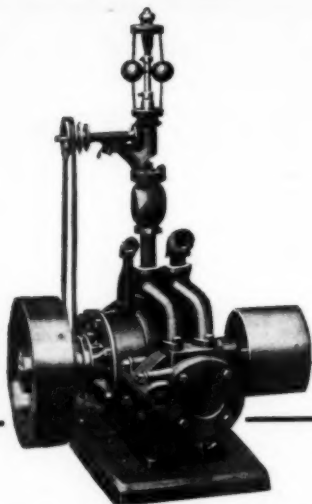


Compression  
Grease Cup



Rotary Head

**W.C. & F.C. TUCKER, Hartford, Conn.**



## ***Two Cylinder Portable Motor*** **For Steam or Air**

Equal to an electric motor for quick work, it is much more economical when steam or compressed air is available. It is dust and fool proof, all working parts being inclosed in an oil-tight case. Runs up to 400 r. p. m. with but little vibration. It is an ideal drive for our portable boring bars, valve seat planers, milling machines, etc.

### **OUR LINE OF PORTABLES FURTHER INCLUDES**

circular planer tools; radius and rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; crank pin turners; rotary flue cleaners; pipe benders; rail saws; armature and axle bearing borers, etc.

*They save money in railway and repair shops. Get posted.*

**L. B. Flanders Machine Works (Est. 1870)**

**H. B. Underwood & Company**

**1016-22 Buttonwood St., Philadelphia, Pa.**

## Second-Hand Machinery.

Lists of second-hand machinery, either for sale or wanted, will be published under this heading at the rate of **40 cents a line**, across the page, each issue, with a minimum charge of **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for.

Write directly to the parties offering the machines for sale for prices and full descriptions. If you do not find what you require, use the slip inclosed with each book to make known your wants to the publisher.

### FOR SALE BY

**New Haven Manufacturing Co.,**

**New Haven, Conn.**

We have for sale the following second-hand tools, which are now in use, of modern type and in first class condition, with full and complete equipment:

Boring mills, vertical, 42, 44, 52, and 60", with two heads.

Drills, upright, 28" and 40".

Lathes, 18" to 28" swing, 8' to 14' long.

Planers, 24, 28, 34 and 40" square, 6' to 30' long.

### FOR SALE BY

**Wayne Machinery Co., Taylor St. & L. E. R. R., Fort Wayne, Ind.**

#### RANDOM SELECTIONS

From our stock of over 700 machines.

Blower, No. 5 Sturtevant, cupola.

Bolt cutter, No. 50 Green River.

Boring mill, 34" Colburn.

Drill press, 20" Aurora, w. & l.

Drill press, 36" Aurora, b. g.

Engine lathe, 14"x5" Prentice.

Machine tools and pattern shop machines for every requirement.

Write today for Wayne List, which fully describes our complete stock.

Engine lathe, 18"x8" Standard.

Engine lathe, 34"x20" back geared.

Hack saw, No. 4 Racine, b. s.

Planer, 26"x26"x5" Standard.

Planer, 36"x36"x8" Powell.

Punch & s., dbl.e., No. 19 Hunting'n.

### FOR SALE BY

**W. L. Perkins Machinery Co.,**

**30 Church St., New York**

#### LATHES.

14"x8' Sebastian gap lathe, c. rest.

16"x6' Hamilton, compound rest.

16"x8' Reed, compound rest.

18"x8' Hamilton, compound rest.

18"x10' Rahn-Carpenter, comp. rest.

20"x10' Putnam, compound rest.

#### MISCELLANEOUS.

Boring mill, 30" Bullard, tur. head.

Key-seater, No. 1 Baker Bros.

Milling mche., No. 1 1/2 Garvin univ.

Milling mche., No. 3 Becker-B univ.

Milling mche., No. 2 B. & S. univ.

Pipe machine, 3 1/2" Saunders.

Screw mche., No. 2 W. & S., wire fd.

Planer, 24"x24"x6" Pond.

Shaper, 14" Juengst, horiz., crank.

Shaper, 12" Walcott, geared.

### FOR SALE BY

**McCoy & Brandt,**

**410 House Building, Pittsburgh, Pa.**

Bolt cutters, 1 1/2", 3" single, 2" dbl.

Boring & facing mch., No. 5 Barrett.

Bulldozers, Nos. 0, 2, 4, 5, 7, 9 W. W. (6).

Cranes, two 10-ton, one 15-t., 220 v., d. c.

Crane, 40-ton, 40' span, 220 v., d. c.

Gas engines, 100, 85, 60, 50, 25, 15 h. p.

Generator, 19 k. w., 110 v. d. c., belted.

Generator, 9 k. w., 110 v. d. c., connected to Troy auto. steam engine.

Grinder, 156" Bridgeport auto. knife.

Hammer, 75 lb. Bradley, upright strap

Hammers, 300 to 3,000 lb. steam dps.

Heading & forging mchs., 1 1/2", 1 1/4", 3".

Loco. crane, 10 ton Industrial.

Motors, a. c., 1 to 150 h. p., 2 & 3 p. 60 cy.

Pipe machines, 12" Stoeber, 3" Acme.

Press, cam drawing, No. 65 Toledo special.

Presses, Bliss Nos. 73 1/2, 74 1/2, 75 1/2, (7).

Press, Bliss toggle, 8" stroke.

Presses, Ferracute Nos. D-55, DG-56,

S-132.

Shear, guillotine type, 4", 5" squares.

Shears, alligator, 1 1/2", 2 1/2", 4", 5" sq.

All good. Details upon request.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Niles-Bement-Pond Company, 111 Broadway, New York.**  
**Located at Chicago, Boston and New York.**

Send for Catalogue No. 18.

#### LATHES.

13x6 P. & W., r. & f., taper.  
 14x10 P. & W. c. r., taper.  
 15x7 speed lathe.  
 16x10 P. & W., r. & f. & t.  
 18x6 Pond, turret tool post.  
 18x7 Pond, turret tool post.  
 19x8 Pond, compound rest.  
 20x10 Flather, c. r.  
 20x14 LeBlond c. r., taper.  
 22x12 Niles, with taper.

22x22 Niles.  
 28x12 Pond, compound rest.  
 30x16 Pond, compound rest.  
 32x12 Pond, compound rest.  
 36x14 Niles, compound rest.  
 36x17 Pond, 220 v. motor drive, taper.  
 40x16 Bement, b.g., not screw cutting.  
 42x22 Niles, comp. r., tri. grd.  
 42x30 Putnam, comp. r., tri. grd.  
 44" P. & W. pulley lathe.

#### SCREW MACHINES, TURRET LATHES, ETC.

No. 3, 2 13-16" Niles screw mch.  
 2x34 Jones & Lamson.  
 2x26 P. & W. piston and piston ring equipment.  
 21" Gisholt, turret.  
 24-27 Conradson semi-automatic turret, 2 3-16" hol. sp.  
 28" Milwaukee turret, 4 1/2 in. hol. sp.

4" Hartford, automatic pin machine  
 4" P. & W. automatic screw mach.  
 4" P. & W. 2 sp. automatic screw machine.  
 4" Acme old style 4-sp. automatic.  
 4" single turret Spencer automatic.  
 21-32" No. 2 Brown & Sharpe automatic screw machine.

#### BORING MACHINES.

30" turret hd., b. & t. mill, Colburn.  
 37" Niles, b. & t., 2 heads.  
 5" Niles, 2 heads.  
 6" Pond, 2 heads, with slotting att.  
 7" Niles, 2 heads.  
 10" Niles, 2 hds. 220 v., motor drive.  
 10-16" Niles b. & t., 2 heads.

10-16" Bement, 220 v., d. c., motor dr.  
 2 1/2" sp. Kelly hor. bor. and drill.  
 3 1/2" sp. Bement hor. bor. & drill.  
 5 1/2" sp. Niles, floor borer.  
 96" swing x 10" centers bor. & facing, weight: about 43,000 lbs.

#### UPRIGHT AND SENSITIVE DRILLS.

13" 1 sp. sensitive, motor dr., 110 v.  
 10" 3 sp. sensitive, Slate.  
 10" 3 sp. sensitive, Sigourney.  
 2 spindle dbl. column sen., Langelier.  
 17" 4 sp. gang, Jones & L.  
 21" Aurora, b. g., p. f., sta. head.  
 30" ali. head, Gould & Eberhardt.  
 36" sliding head, Gould & E.

36" Aurora, sliding head.  
 4 spindle Bement, multiple, 11' between housings.  
 No. 11 multiple drill, P. & W.  
 10 sp. adjustable R. & W., capacity 1 1/2" holes in 37" circles, belt or motor; weight: 30,000 pounds.

#### RADIAL DRILLS.

4 1/2" semi-radial, Barr.  
 4" Niles, plain.  
 4" Niles, univ.  
 5" Niles, plain.  
 5" plain, motor, Pond.

5' 6" universal, Niles.  
 6' heavy plain, Pond.  
 6' 10" semi-universal, Niles.  
 7' 6" full universal, Niles.  
 Univ. portable radial, Prentice.

#### MILLERS AND GEAR CUTTERS.

No. 1 Duplex Van Norman.  
 24x7 table, plain, Becker.  
 No. 1 B. & S. plain, late model.  
 No. 1 1/2 LeBlond, plain.  
 No. 3 LeBlond, plain.  
 No. 4 LeBlond, plain.

43-9 1/2 No. 3 Cincinnati plain, b. g.  
 6x80 thread miller, P. & W.  
 36" spur gears, Pond.  
 36"x8" No. 3 B. & S. spur gears.  
 48"x10" No. 4 B. & S., spur gears.  
 72" spur gears, Niles.

#### PLANERS.

22x22x6 Harrington.  
 28x28x7 Niles, heavy type.  
 26x23x16 Miles, 2 hds.  
 30x30x6 Pond, 1 head.  
 30x30x8 Pond, 2 heads.  
 30x30x11 Niles, 1 head.  
 30x30x24 Sellers, 2 hds.  
 36x36x14 Pond, 4 heads.  
 36x36x20 Pond, 3 hds.  
 42x42x20 Miles, 3 hds.

48x48x12 Niles, 3 hds.  
 48x48x16 Pond, 4 heads, heavy.  
 48x48x20 Sellers, 3 hds.  
 72x60x20 Niles, 2 hds.  
 86x86x30 Pond, 4 hds., revers. motor dr.  
 96x96x30 Niles, 4 heads.  
 10'x10'x30' Niles, 4 heads.  
 10'x10'x36' Betts, 4 heads, 50 h. p., 220 v., motor drive.

## SECOND-HAND MACHINERY

### Niles-Bement-Pond Company—Continued.

#### RAILROAD MACHINERY.

42" Niles heavy car wheel lathe. Bement and Niles dbl. axle lathes.  
46" car wheel lathe, Bement. Putnam double axle lathe ex. heavy.

#### SHAPERS AND SLOTTERS.

10" crank shaper, P. & W. 20" Bement, 220 v. motor, traveling  
10" crank shaper, Miles. head. like new.  
12" crank shaper, Bement. 12" crank slotter, Bement.  
18" double trav. head, Cincinnati. 14" crank slotter, Niles.

#### MISCELLANEOUS.

Bar cut-off saw, 22" diam. blade. Grinder, plain, 5x32 in. Landis.  
Cut-off machine, 2 1/2 in. P. & W. Grinder, univ., 10x30 Landis.  
Cut-off machine, 4 1/2 in. Starr. Grinder, 12x96 in. Springfield.  
Grinder, wet tool, Gisholt. Saw grinder, automatic.  
Grinder, drill, 3 in. Sellers.

### FOR SALE BY

#### Brown-McDonald Machinery Co.,

906-908-910 North Market Street, - - - St. Louis, Mo.

#### LATHES.

14x5 Star. 22"x 8' New Haven, comp. rest.  
14", 16" & 18" Monarch, new, (5). Speed lathes, all sizes, (5).  
16"x 6' Hamilton.

#### DRILLING MACHINES.

20" Silver and Champion, new, (3). 36" Gang radial.  
3 spindle Reed sensitive, cap. 4". 50" Sellers, b. g.  
26" Bames, b. g., p. f., with tap. att.

#### PLANERS.

30"x30"x9' New Haven. 24"x24"x7' Niles.

#### MISCELLANEOUS.

Brake, 10' Robinson, cap. 16 gauge. Presses, foot, No. 3 Swaine, (2).  
Hammer, air cushion, 90-lb. belt dr. Shear, power square, 8' Bertsch, 16  
Presses, Nos. 35 and 33 Swaine. gauge cap.  
Large stock of Emery Grinders, Blowers, Punch & Shears, etc.

### FOR SALE BY

The Osborne & Sexton Machinery Co., . . . Columbus, Ohio.

#### LATHES.

15"x5' Reed, hollow spindle. 20"x12' cabinet legs, rebuilt.  
14"x6' Springfield, hollow spindle. 24"x10' LeBlond, turret on ways.  
14"x8' thoroughly rebuilt. 28"x10'.  
15"x6' Putnam and Wood-Light, (2). 38"x14' Fifield, rebuilt.  
18"x10' Pond, rebuilt. 38" 48"x13' centers, Harrington.

#### SHAPERS AND PLANERS.

11" Gould Brothers. 30" Morton, draw cut.  
16" Smith & Mills. 20x20x4' single head.  
16" Steptoe. 32x32x6' and 8' both Grays.

#### TURRET LATHES AND SCREW MACHINES.

12" Pratt & Whitney screw machine. 18" American Fox lathe.  
15" Pratt & Whitney, turret. 23" Fay chucking lathes, (2).  
16" Warner & Swasey, grd. head. 5" bar turret, Pratt & Whitney.

#### DRILLING MACHINES.

22, 24 and 30" Hamilton. 24" heavy duty Foote-Burt.  
4-spindle gang, sensitive. 4-spdl. Niles, 2" capacity.  
4-spdl. multiple, Foote-Burt. 30" radial, plain, (2).

#### MISCELLANEOUS.

Cold saw, Lucas, 8" capacity. Miller, Garyn No. 2 1/2 universal.  
Disc grinder, double end. Besly. Press, drawing, Q. & C. 4500 lbs.  
Hammers, fric. bd., 3 0, 400 & 3,000 lbs. Press, o. b., No. 3 Crosby.  
Hammer, helve, 25 & 60 lb. Bradley. Rolls, shovel blanking, Toledo.  
Miller, No. 2 Cincinnati plain. Valve miller, Warner & Swasey.

## SECOND-HAND MACHINERY

### FOR SALE BY

The H. A. Stocker Machinery Co., 566-72 W. Randolph St., Chicago

#### LATHES.

- |                                     |                                   |
|-------------------------------------|-----------------------------------|
| 7"x32" Stark, c. r. and chucks.     | 18"x8" Reed, compound rest.       |
| 11"x5" Star, compound rest.         | 18"x10" American, q. c. g.        |
| 12"x6" Hendy, tool wk.              | 18"x10" S. & B., with taper.      |
| 14"x5" P. & W., with taper.         | 18"x11" Lodge & Davis, taper.     |
| 14"x6" Flather, q. c. g. and taper. | 20"x8" Lodge & Shipley, d. b. g.  |
| 15"x6" Von Wyck, d. b. g.           | 20"x10" Cincinnati compound rest. |
| 16"x6" Cincinnati, relief. attach.  | 30"x12" Flather, like new.        |
| 16"x8" Hamilton, with taper.        | 30"x18" Reed, with chuck.         |
| 16"x10" Cin., turret on shears.     | 32"x14" Putnam, compound rest.    |
| 18"x8" Bradford, c. r. and chuck.   | 32"x18" Pittsburg, d. b. g.       |

#### SHAPERS.

- |                                |                            |
|--------------------------------|----------------------------|
| 6" Boynton & Plummer.          | 17" Barker & Chard.        |
| 16" Stockbridge, with p. d. f. | 24" Gould & Eberhardt.     |
| 16" Gould & Eberhard.          | 28" Putnam, triple geared. |

#### PLANERS.

- |                   |                                   |
|-------------------|-----------------------------------|
| 22x22x5 Whitcomb. | 36x36x12 Gray.                    |
| 22x22x5 Pease.    | 40x38x14 Putnam.                  |
| 26x26x6 Pond.     | 42x42x14 Detrick & H., open side. |
| 26x26x8 Whitcomb. | 44x44x12 Pond.                    |

#### GRINDERS.

- |                                    |                                      |
|------------------------------------|--------------------------------------|
| No. 1 Cin., univ. cutter & tool.   | No. 2 Brown & Sharpe, surface.       |
| No. 2 Norton, univ. cutter & tool. | No. 2 B. & S., surface, with mag ck. |
| No. 2 Bath, univ. cutter & tool.   | No. 2 Binsse, surface, & mag. ck.    |

#### MILLING MACHINES.

- |                                 |                             |
|---------------------------------|-----------------------------|
| No. 3½ VanNorman, bench.        | No. 2 Cincinnati universal. |
| No. 2 Burke, column.            | No. 4 Cincinnati universal. |
| No. 1½ B. & S., universal, (3). | No. 2 B. & S., plain.       |
| No. 2 B. & S., plain.           | No. 2 Cincinnati, plain.    |
| No. 2 Owen, plain.              | No. 5 Cincinnati, plain.    |
| No. 1Y, B. & S., plain, (2).    | No. 12 Garvin, plain, (4).  |

#### DRILLING MACHINES.

- |                                 |   |
|---------------------------------|---|
| Henry & Wright, single spindle. | 20" Davis, b. g. & p. f.                |
| Henry & Wright, 6 spindle.      | 21" Aurora, b. g., p. f. & tap. attach. |
| Barr, 4 spindle, (6).           | 28" Cincinnati-Bickford, comp. tbl.     |

#### POWER PRESSES.

- |                     |   |
|---------------------|---|
| No. 3 Walsh, (2).   | No. 3 Bliss, double crank.  |
| No. 3 Am. Can Co.   | No. 18 Bliss.   |
| No. 3 Consolidated. | No. 430 McDonald, double crank.                                   |
| No. P5 Ferracute.   | Humphrey single end punch and shear, 36" thr., 14"x14", like new. |
| No. 5½ Walsh.       |   |

#### PROFILER.

- No. 2 Garvin 2-spindle, like new.

#### SCREW MACHINES.

- |                            |                            |
|----------------------------|----------------------------|
| No. 1 Warner & Swasey.     | No. 4 Bardons & Oliver.    |
| No. 2 Warner & Swasey.     | No. 51 National automatic. |
| No. 2½ Pratt & Whitney.    | 6" Cleveland automatic.    |
| No. 2 Woods, lot of tools. | 8"-4" Cleveland automatic. |
| No. 3 Warner & Swasey.     | No. 00 B. & S. automatic.  |

#### BORING MILLS.

- |                           |                           |
|---------------------------|---------------------------|
| 37" Niles vert., 2 heads. | 34" Colburn, turret head. |
| 42" Bullard, 2 heads.     | No. 3 Binsse, horizontal. |

#### GEAR CUTTERS.

- |                        |                                 |
|------------------------|---------------------------------|
| 42" Gould & Eberhardt. | 20" Brown & S., spur and bevel. |
| 30" Flather.           | 12" Reynolds hobber.            |

#### MISCELLANEOUS.

- Bolt cutters, turret lathes, grinders, pipe machines, cutting-off machines, cold saws, hack saws, hammers, bulldozers, motors, vises, Brown & Sharpe surface plates, bench plates, die filers.  
Everything used in the shop.

## SECOND-HAND MACHINERY

### FOR SALE BY

**J. J. McCabe,**

**30 Church Street, New York, N. Y.**

#### LATHES.

- |   |                                     |
|---|-------------------------------------|
| 12"x5',                                   | 27"x14', geared head, quick change, |
| 14"x6', quick change.                     | arranged for motor.                 |
| 16"x6', 3-step cone, double bk. gears.    | 28"x14'                             |
| 16"x10'                                   | 28"x15'                             |
| 18"x8'                                    | 28-48"x14', sliding bed.            |
| 18"x10', qk. chg., 3-step cone, d. b. g.  | 30"x10', raise-blocks to swing 36". |
| 20"x8', 3-step cone, dbl. back gears.     | 30"x12'                             |
| 20"x10'                                   | 30"x14' heavy triple geared.        |
| 20"x14', gap swings 36".                  | 32"x12'                             |
| 20"x12', 3-step cone, dbl. back gears.    | 36"x16'                             |
| 21"x8', qk. change, 3-s. cone, d. b. grs. | 40"x10'                             |
| 22"x8', double back gears.                | 42"x20' heavy triple geared.        |
| 22"x12'                                   | 42" double head car-wheel lathe.    |
| 24"x10'                                   | 50"x16' heavy triple geared.        |
| 24"x12', chuck.                           | 52"x28' heavy triple geared.        |
| 24"x16', 3-step cone, dbl. back gears.    | 56"x24' heavy triple geared.        |
| 26"x16', raise-blocks to swing 33".       | 65"x25' heavy triple geared.        |

#### PLANERS.

- |                                   |                                       |
|-----------------------------------|---------------------------------------|
| 26"x26"x7', 1 head.               | 48"x42"x10', 1 head.                  |
| 28"x28"x8', 1 head.               | 48"x48"x12', 2 heads.                 |
| 30"x30"x6', 1 head.               | 48"x48"x16', 3 heads.                 |
| 30"x30"x7', 2 heads.              | 60"x60"x12', 4 heads.                 |
| 30"x30"x8', 1 rail, 1 side head.  | 60"x60"x18', 4 heads.                 |
| 36"x36"x8', 1 head.               | 72"x72"x14', 2 heads.                 |
| 36"x36"x8', 2 heads.              | 76"x76"x14', 1 rail and 2 side heads. |
| 36"x36"x10', 2 heads.             | 120"x120"x20', 4 heads, arranged for  |
| 42"x42"x10', 1 rail, 1 side head. | motor drive, in the best A-1 con-     |
| 42"x42"x14', 1 head.              | dition.                               |

#### TURRET LATHES.

- |  |  |
|--|--|
| 28", 44" hol. spdl., hvy. triple geared. | 22", 2" hollow spindle, semi auto.     |
| 28", 34" hol. spdl., hvy. triple geared. | 20", 2" hollow spindle.                |
| 24", 24" hollow spindle, heavy triple    | 16", 2" hollow spindle.                |
| geared.                                  | 2x24" Flat turret lathes, sliding hds. |
| 24", 44" hol. spdl., hvy. triple geared. | 3x36" Flat turret lathes, sliding hds. |

#### UPRIGHT BORING MILLS.

- |  |                                      |
|--|--------------------------------------|
| 36", 2 heads on rail.                    | 72", 2 heads on rail.                |
| 42", 2 hds., 1 turret, thread cut'g att. | 80", 2 heads on rail, extra heavy.   |
| 44", 2 heads, 1 turret, quick change.    | 100", 2 heads on rail.               |
| 51", 2 hds., 1 turret, for motor drive.  | 14", extension type.                 |
| 51", 2 heads on rail.                    | 20", 2 heads on rail, heavy pattern, |
| 5', 2 heads on rail.                     | slotting attachment.                 |

#### HORIZONTAL BORING MACHINES.

- |                                      |                                   |
|--------------------------------------|-----------------------------------|
| 28" bar floor type drilling and tap- | 24" bar, knee type, outside yoke. |
| ping machine.                        | 54" lathe type, 54" centers.      |

#### HEAVY DRILLING MACHINES.

- |   |  |
|---|--|
| 8-sp., multiple, cap. eight 1 1/2" holes. | Radial 120", 5' arm, half universal.     |
| Radial 144", 7' arm, plain heavy.         | Radial 120", 5' arm, plain heavy.        |
| Radial 144", 6' arm, plain heavy.         | Radial 108", 4 1/2' arm, half universal. |
| Radial 132", 5 1/2' arm, plain heavy.     | Radial 80", 4' arm, heavy plain.         |

#### MILLING MACHINES.

- |                                       |  |
|---------------------------------------|--|
| Planer type 24" wide, 8' table.       | Manufacturers type, 24", tbl. 58"x16". |
| Planer type 24" wide, 12' table.      | Pl. hvy., overhang arm, tbl. 60"x16".  |
| Plain, heavy, large size, overhanging | Vertical, large size, table 53"x16".   |
| arm, table 81"x17 1/2', speed box.    | Pl. hvy., overhang arm, tbl. 42"x12".  |

#### GEAR CUTTERS.

- |                                     |                                |
|-------------------------------------|--------------------------------|
| 22" Spur and bevel, full-automatic. | 24" Bevel gear planer.         |
| 22" Spur and spiral hobbing mche.   | 36" Spur and bevel, automatic. |

#### SLOTTERS.

- |  |                                     |
|--|-------------------------------------|
| 12" stroke, table has all auto. feeds. | 19" stroke, table has all automatic |
| 24" stroke, table has all auto. feeds. | feeds, heavy.                       |

#### BENDING ROLLS.

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| 10'8" between housings, drop end,   | 10' between housings, drop end, top |
| top roll 11" diam., lower rolls 9". | roll 9 1/2" diam., lower rolls 3".  |

## SECOND-HAND MACHINERY

### FOR SALE BY

**The E. L. Esley Machinery Co., 551-557 Washington Blvd., Chicago**  
**Branch, 222 Grand Ave., Milwaukee, Wis.**

#### BORING MILLS.

- |   |   |
|---|---|
| 20" Bullard, sw. turret, pl. table, (2).      | 54" Colburn, for fly wheels, 2 heads, center boring spindle, pl. table. |
| 30" Colburn, sw. turret, 3-j. chuck.          | 19" Underwood vert. cyl. borer.   |
| 36" Bridgeport, 1 head, pl. table.            | No. 1 Barrett horiz. cyl. borer.  |
| 42" Baush, 1 pl., 1 tur. hd., pl. table, (2). | No. 1½ Barrett horiz. cyl. borer.                                       |
| 51" Niles, 2 heads, plain table.              | No. 2 Rochester table type, horiz. b. and d. machine, new.              |
| 60" Baush, 2 heads, plain table, (2).         |   |
| 60" Niles, 2 heads, plain table.              |   |

#### DRILLING MACHINES.

- |  |   |
|--|---|
| 14" 1-sp. Cincinnati sensitive.                                      | 28" Barnes, s. h., b. g. and p. f.        |
| 14" 6-sp. Foote-Burt, sensitive.                                     | 34" Barnes, s. h., b. g. and p. f.        |
| 16" Willey tric. 220 v., 3 p., a. c., motor.                         | 18" Baker, style F., heavy, (2).          |
| 24" Superior s. h., b. g. and p. f.                                  | 24" Colburn D 3., high duty.              |
| 24" Bickford s. h., b. g.  | 15" Avey No. 2, 6-sp. ball bearing.       |
| 24" Mechanics s. h., b. g. and p. f.                                 | 20" 2-sp. Mechanics gang.                 |
| Type E. Gardam, 12 sp. multiple, 1" cap. 15" cir., motor drive, new. | Leland-G. 1 sp., h. s., 16,000 r.p.m. new |
|  | 12" O. H. Henry-W. 1 sp. b. b., new, (2)  |

#### DRILLS, RADIAL.

- |                               |                                     |
|-------------------------------|-------------------------------------|
| 2" American sensitive radial. | 4" No. 1 Bickford plain, rebuilt.   |
| 3" American plain, like new.  | 4" Bickford plain, speed box.       |
| 3½" Baush plain, cone drive.  | 4" Lodge & Davis plain, cone drive. |

#### GRINDERS.

- |   |                                     |
|---|-------------------------------------|
| No. 6A Bryant, hole and face.           | 24" Barnes, wet tool.               |
| No. 60 Heald, cylinder.                 | No. 3 Diam'd. auto. surface 48x12x9 |
| No. 2 Cincinnati 12x36 univ., like new. | No. 1 Diamond, auto. face, 26".     |
| 4 h. p. Watson, dry, 220 v., d. c.      | Gisholt, universal tool.            |

#### HAMMERS.

- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 200 lbs. Chambersburg, steam, s. f. | 100 lb. Wais & Roos, belted.    |
| 40 lb. Bradley, helve, r. c.        | 600 lb. Pratt & W., board drop. |

#### LATHES.

- |                             |                                |
|-----------------------------|--------------------------------|
| 12"x6" Young, c. r.         | 20"x8" Bridgeport, c. r.       |
| 14"x6" Reed, c. r., (2).    | 22"x12" Milwaukee, c. r.       |
| 14"x6" L. & Davis, c. r.    | 24"x12" Pond, c. r.            |
| 15"x6" Von Wyck, c. r.      | 24"x14" Putnam, c. r.          |
| 15"x6" Walcott, c. r.       | 24"x18" Lodge & Shipley, c. r. |
| 16"x6" Springfield, c. r.   | 25"x12" Blaisdell, c. r.       |
| 16"x8" Rahn & L., c. r.     | 28"x14" New Haven, c. r.       |
| 16"x8" Hendy, c. r.         | 30"x14" Fifeid, c. r.          |
| 18"x8" Davis, c. r.         | 30"x16" Fifeid, c. r.          |
| 18"x10" Blaisdell, c. r.    | 36"x17" Gleason, c. r.         |
| 18"x8" Milwaukee, new, (3). | 14"x6" Monarch, new.           |
| 22"x10" Milwaukee, new.     | 18"x10" Monarch, new.          |
| 24"x12" Milwaukee, new.     | 14"x6" Seneca Falls, new, (2). |
| 16"x8" Champion, new, (2)   | 16"x8" Springfield, new.       |
| 18x8x10" Champion, new.     | 20"x10" Springfield, new.      |

#### MILLING MACHINES.

- |                                      |                                 |
|--------------------------------------|---------------------------------|
| No. 1 B. & S., plain.                | No. 2½ Garvin, plain.           |
| No. 2 Kearney & T., plain.           | No. 32 Kempsmith, Lincoln type. |
| No. 1½ Cincinnati, plain, late type. | 20"x7" Grant, Lincoln type.     |
| No. 3 LeBlond, plain.                | 60" Barr, key-seat type.        |
| No. 21 Garvin, plain, new.           | No. 3 Owen, plain, new.         |
| No. 2 Owen, plain, new.              | No. 3 Owen, univ., new.         |

#### TURRET LATHES & SCREW MACHINES.

- |   |  |
|---|--|
| 2"x24" Jones & L., cone & sgl. p., (2). | 7 16" No. 1 P. & W., w. f. & a. c., (2). |
| 18x6 No. 2 American Imp. (brass), (2)   | 8" P. & W., w. f. & a. c., (3).          |
| 16x5 No. 3 Foster, Fox (brass).         | 8" Garvin, w. f. & a. c.                 |
| 16" Dresses, universal, (brass).        | 10" Garvin, w. f. & a. c.                |
| 13" Gisholt, turret, style G.           | 18" Foster-K., w. f. & a. c.             |
| 28" Gisholt, turret.                    | 20" Acme, w. f. & a. c.                  |
| 14x5 Lodge & D., turret.                | 8" Cleveland auto., late type.           |
| 22" Lodge & D., turret.                 | 8" Cleveland auto., late type.           |



## SECOND-HAND MACHINERY

### The E. L. Esley Machinery Co.—Continued.

#### MISCELLANEOUS.

Air compressor, 6"x6", vertical.  
Bar saw, No. 4 Keystone.  
Bar saw, 64" Smith & P., new.  
Bending roll, 6" Niles.  
Bolt cutter, 14" No. 5 Howard.  
Bolt cutter, 14" Merriam.  
Bolt cutter, double, 14" Acme.  
Bulldozer, No. 1 W.-White.  
Centering mche., 2-sp Pratt & W.  
Cut-off machine, 4" Hurlburt-R.  
Fly wheel punch, No. 17 W. W.  
Gas furnace, 12x64, No. 1 American.  
Gear cutters, 28x8 No. 3 B. & S., (2).  
Gear and p. cutter, Slate auto.  
Gear hobbles, 12" Adams-F., (4).  
Gear hobbles, 12" Reynolds, (2).  
Gear hobber, No. 24 Khenania, new.  
Jointer, 12" Woodward.  
Keyseaters, No. 0 Mitts & M., (2).  
Keyseater, 18" Morton.  
Lathe, wood, 20x10 Fay.  
Lathe, wood, 80" swing.  
M. & G. cut'g att., No. 3 Young, new.

Mitering mche., No. 5 Fox.  
Oil separator, Reed & Curtis.  
Pipe mche., 2" No. 7 Jarecki.  
Planer, 21"x18"x41" Putnam.  
Planer, 30"x26"x1" Powell.  
Planer, 30"x30"x10" Pond.  
Planer, 40"x36"x12" New Haven.  
Pulley lathe, 26" Stevens.  
Pulley lathe, 30" Streitt.  
Punch p., Nos. 1, 2 & 4 Rockf'd, o.b.i.  
Punch presses, 119 Crosby, o.b.i., (2).  
Punch p., No. 40 Perkins, o.b.i. new.  
Punch & s., dbl., 1"x1" 17D New Doty.  
Punch and s., sgl., 1"x1" No. 2 Cin.  
Punch & s., sgl., 1x4 12" Cleve'd, new.  
Rivet spinner, 4" National.  
Rotary shear, 6" Lenox, 4" cap.  
Saw, No. 14 Higley, motor drive.  
Saw table, universal, Baker.  
Shaper, 20" Kelley, s. g.  
Sprocket b. & t. mche., Baker.  
Wire s. & c.o.mch., 3-16"x4" Adt, new.  
Wire s. & c.o.mch., 3-16"x10" Shuster.

#### FOR SALE BY

Vonnegut Machinery Co., 121 S. Meridian St., Indianapolis, Ind.

#### MOTORS.

5, 10, 25, 30, 35 h.p., 220 volt, 60 cy., 3 ph. 5 and 10 h. p., 220 volts, d. c.

#### GRINDERS.

10x20 Landis, plain.  
12x32 Landis, plain.  
12x42 Landis, plain.  
5x48 Pratt & Whitney, plain.  
No. 1 Norton, universal tool.

No. 3 Brown & Sharpe, tool.  
18" Gorton, circ.  
No. 200 Heald, ring.  
No. 210 Heald, ring.  
No. 60 Heald, cylinder.

#### DRILLING AND TAPPING MACHINES.

12, 14 and 20" Rockford.  
15, 20 and 24" Barnes.  
20" Cincinnati.  
25 and 26" Barnes.  
30" Lodge & Davis.  
3-spindle Baker.

4-spindle Gardam.  
6-spindle Quint, turret.  
4" Niles racial.  
No. 1 Garvin tapper.  
1, 2, 3, 4-spindle Barr.  
1, 2, 3, 4-spindle Reed.

#### MILLING MACHINES.

No. 40 Becker-Brainard, duplex.  
No. 2 Garvin, duplex.  
No. 2 Van Norman.  
No. 24 LeBlond, plain.  
No. 1 Cincinnati, universal.

No. 1 Grand Rapids, plain.  
No. 6 Whitney, hand.  
No. 2 Garvin, Lincoln.  
No. 12 Pratt & Whitney.

#### TURRET LATHES AND SCREW MACHINES.

12" Pratt & Whitney.  
16" Davis & Egan.  
16" Acme.  
No. 1 Bardons & Oliver.  
18" Lodge & Davis.

18" Bardons & Oliver.  
24" Davis.  
2x24 Jones & Lamson.  
14" Cleveland automatic.

#### LATHES.

12x8 Willard.  
14x6 Lodge & Shipley.  
15x6 Sebastian.  
16x6 Von Wyck.  
16x8 Lodge & Shipley.  
16x8 Greaves-Klusman.  
18x8 Greaves-Klusman.

18x8 Lodge & Shipley.  
18x10 Lodge & Shipley.  
20x8 Lodge & Shipley.  
20x8 American.  
20x10 Reed.  
22x10 Reed.

#### MISCELLANEOUS.

Boring machine, 34" Colburn.  
Keyseater, No. 2 Giant.

Keyseater, No. 00 Baker.  
Punch presses, P-2 & P-3 Ferracute

## SECOND-HAND MACHINERY

### FOR SALE BY

**Rumely-Wachs Machinery Co., 121 N. Jefferson St., Chicago, Ill.**

#### ENGINE LATHES.

16"x 6' Hamilton, q. c.	21"x 10' Bradford.
16"x 6' F. E. Reed.	24"x 10' Schumacher & Boye, q. c.
16"x 8' American, q. c. taper.	24"x 24' Fifield.
18"x 8' F. E. Reed, taper.	26"x 10' American.
18"x 8' Hamilton.	30"x 14' American.
18"x 10' Rahn-Carpenter.	30"x 20' Lodge & Shipley, q. c.
20"x 9' Draper.	36"x 12' Schumacher & Boye.
20"x 10' Lodge & Shipley, q. c.	36"x 14' Fifield.

#### UPRIGHT DRILLS.

20" Davis, b. g.	28" Sibley & Ware, sliding head.
21" Cincinnati.	28" Barnes, sliding head.
22" Lodge & Davis.	31" Barnes, sliding head.
22 1/2" Barnes, b. g.	32" Cincinnati, sliding hd., tapping.
23" Rockford, sliding head.	24" Baker Bros. heavy duty.
24" Cincinnati, sliding head.	40" Lodge & Davis, sliding head.

#### RADIAL DRILLS.

3' Fosdick, plain, tapping att.	4 1/2' Bickford, plain.
4' Fosdick, plain, tapping att.	5' Prentice, plain.

#### SHAPERS.

15" Hendy, friction.	16" American, b. g. crank.
16" Juengst, crank.	20" Kelly, crank.
16" Stockbridge, crank.	24" Gould & Eberhardt, b. g. crank.

#### PLANERS.

16"x 16"x 4' Lathe & Morse.	36"x 36"x 8' Fitchburg.
22"x 22"x 5' Wheeler.	36"x 36"x 8' American, two heads.
24"x 24"x 6' Pond.	36"x 35"x 15' Woodward & Powell,
30"x 30"x 8' Putnam.	(frog and switch.)

#### MILLING MACHINES.

No. 1 Brown & Sharpe, universal.	No. 2 Cincinnati, plain.
No. 1 LeBlond, universal.	No. 2-H Brown & Sharpe, plain.
No. 1 Brown & Sharpe, plain, (3).	No. 3 Kempsmith, plain.
No. 1-V Brown & Sharpe, pl., (6).	No. 3 Cincinnati, plain, (2).
No. 21 Garvin, (2).	No. 3 Newton, plain.
No. 2 Brown & Sharpe, plain.	No. 3 Pratt & Whitney, plain, (2).
No. 2 Kempsmith, plain.	Nos. 3, 4 and 4-B Becker, vertical.

#### SCREW MACHINES.

No. 1 Garvin, 1/2"	No. 12 1/2 Garvin, power feed, 2"
No. 1 Brown & Sharpe.	No. 6 Warner & Swasey, pwr. fd. 2 1/4".
4x4 1/2" Pratt & Whitney.	1/2" Pratt & Whitney, automatic.
1x10" Pratt & Whitney, power feed.	No. 00 Brown & S., automatic.
1 1/2" Bardons & Oliver, power feed.	6 Stehley, automatic.
1-5-16" Foster, (2).	

#### TURRET LATHES.

No. 3 Bardons & O., Fox Monitor.	13" Gisholt, (new).
18"x 6' Springfield, universal.	21" Gisholt.
2x24" Jones & Lamson, sldg. head.	No. 22 1/2 Garvin.
18"x 6' Lodge & Davis, (2).	24" Conradson.
18" Windsor.	25" Warner & Swasey, universal.

#### PRESSES.

No. 18 Bliss, o. b. l.	No. 30 Bliss, arch.
No. 19 Bliss, o. b. l.	No. 6 Bauroth, geared, o. b. l.
No. 42 Bliss, o. b. l.	No. 12-A Adrance, drawing.
No. 119 Crosby, o. b. l.	No. 2 Billings & Spencer, trimming.

#### MISCELLANEOUS.

Boring mill, 30" Bullard.	Keyseaters, Nos. 1 & 2 Davis.
Bori. mills, 42" Colburn & Bullard.	Keyseaters, Nos. 2 & 3 M. & M.
Boring mill, horiz., No. 1 Barnes.	Keyseater, No. 3 Baker.
Gear cutters, 26" & 48" B. & S. auto.	Punch, Kling Bros, 19" throat.
Grinder, plain, No. 1 Landis.	Thread miller, 6x45" Pratt & Whitney.
Grinder, plain, 16x30" Norton.	

Write for complete list of tools.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Prentiss Tool & Supply Co., New York, Boston, Buffalo, Syracuse.**

#### BORING MILLS.

- |                                |                                       |
|--------------------------------|---------------------------------------|
| 36" Bullard, vertical, turret. | 62" and 86" Bullard, vertical, 2 hds. |
| 6" Pond, vertical, 2 heads.    | No. 2B Binsse, horizontal.            |
| 9" Pond, vertical, 2 heads.    | No. 5C Binsse, horizontal.            |

#### DRILLING MACHINES.

- |                             |                                    |
|-----------------------------|------------------------------------|
| 1 spindle Reed sensitive.   | 25", 28" & 30" Snyder, sliding hd. |
| 3 sp. Avey, high speed.     | No. 1 Baker, high speed.           |
| 20" Prentice Bros. upright. | 42" Hickford plain radial.         |
| 22" Aurora, sliding head.   | 60" & 48" Bement radials.          |

#### GRINDERS.

- |                                 |                                  |
|---------------------------------|----------------------------------|
| No. 60 Heald, cylinder.         | No. 1 Brown & Sharpe, universal. |
| 6x32, 14x72 and 18x168, Norton. | 24" C Bath, universal.           |

#### MILLING MACHINES.

- |                                       |                               |
|---------------------------------------|-------------------------------|
| Nos. 1, 1½ & 2 Cincinnati, universal. | No. 5 Brown & Sharpe, plain.  |
| No. 2-B Brown & Sharpe, pl. geared.   | No. 14 Garvin, plain.         |
| No. 1 Brown & Sharpe, univ.           | No. 24 Brown & Sharpe, plain. |
| No. 1 Milwaukee, universal.           | No. 4 Cincinnati, plain.      |

#### LATHES.

- |  |  |
|--|--|
| 9" Star, foot power.                                     | 18"x10' Hendey, quick change.                  |
| 11"x5' Prentice Bros., c. r.                             | 20"x8' Lodge & Shipley, 3 step.                |
| 14"x6' Lodge & Shipley, compound rest, power cross feed. | 20"x10' Hendey, taper.                         |
| 16"x6' Lodge & Shipley, patent hd.                       | 22"x8' Reed, compound rest.                    |
| 16"x8' Prentice Bros., compound rest, power cross feed.  | 24"x10' Reed, compound rest, power cross feed. |
| 16"x8' Reed, c. r., p. c. f.                             | 28"x16' Pittsburgh, quick change.              |
| 16"x8' Putnam, compound rest.                            | 30"x20' Lodge & Shipley, patent.               |
| 18"x8' Prentice Bros.                                    | 36"x12' Lodge & Shipley.                       |
|  | 44"x18' Fifeild, heavy.                        |

#### PLANERS.

- |                                   |   |
|-----------------------------------|---|
| 15"x15"x3' Pratt & Whitney.       | 48"x48"x10' Powell, motor drive.        |
| 30"x30"x10' Bement, 2 heads.      | 42"x42"x14' Woodward & Powell, 4 heads. |
| 36"x36"x8' Pond, 1 head.          | 60"x50"x10' Gray, 2 heads.              |
| 36"x36"x12' Lodge & Davis, 2 hds. | 71"x69"x14' Pond, 2 hds.                |
| 38"x38"x12' Gray, 2 hds.          | 84"x84"x20' Niles, 3 hds.               |
| 42"x42"x14' Pond, 2 heads.        |   |

#### HAMMERS.

- |                           |                                 |
|---------------------------|---------------------------------|
| 125 lb. Fairbanks, power. | 1000 lb. Pratt & Whitney, drop. |
| 1200 lb. Billings, drop.  | 600 lb., steam.                 |

#### PRESSES.

- |                               |                             |
|-------------------------------|-----------------------------|
| No. 4 Mossberg & Granville.   | No. 2½ V. & O., inclinable. |
| No. C-82 Ferracute, notching. | E 12 Ferracute, inclined.   |

#### SCREW MACHINES.

- |  |                                   |
|--|-----------------------------------|
| 6x9 Pratt & Whitney, wire feed.        | No. 5A Potter & Johnston.         |
| 1"x10" P. & W., wire feed.             | 21" & 24" Gisholt.                |
| 1½"x9" Acme, wire feed.                | 24" American, heavy.              |
| 2x24 Jones & Lamson, bar and chucking. | Nos. 53 & 55 National-Acme auto.  |
| No. 2 1" Garvin, wire feed.            | 24" & 34" Gridley auto.           |
| No. 2 P. & W., wire feed.              | 4, 8 & 24" Cleveland auto.        |
| No. 2½ P. & W., wire feed.             | 4, 1, 1½ & 2½" Cleveland auto.    |
| No. 6½ Bardons & O., wire feed.        | No. 12, 4" B. & O., motor driven. |

#### SHAPERS.

- |                        |                        |
|------------------------|------------------------|
| 8" Gould & Eberhardt.  | 24" Gould & Eberhardt. |
| 16" Gould & Eberhardt. | 26" Gould & Eberhardt. |

#### MISCELLANEOUS.

- |   |                                       |
|---|---------------------------------------|
| Angle shear, 6" Hilles & Jones.                       | Pipe machine, 4" Saunders.            |
| Bolt cutter, 2" Acme.                                 | Pipe machine 6" Armstrong.            |
| Broaching machines, Nos. 3 and 4 LaPointe.            | Pipe machines, 3", 4" and 6" Jarecki. |
| Cold saw, 9" Fspen-Lucas.                             | Punch and shear, Hilles & Jones.      |
| Gas blowers, Nos. 1, 3 & 4 American.                  | Riveter, Greiner.                     |
| Gear cutters, 16", 24", 36" and 48" Gould & Eberhart. | Screw slotter, National-Acme.         |
| Gear cutter, 36" Cincinnati.                          | Slotters, 10" and 18".                |
|   | Stake riveter, 50" Rock River.        |

## SECOND-HAND MACHINERY

### FOR SALE BY

The Motch & Merryweather Machinery Company,

707-715 Lakeside Av., N. W.,

Cleveland, Ohio

Branches: Detroit, Cincinnati, Pittsburg.

#### BORING MACHINES.

Lucas 2" bar, cone drive, belt feed.  
Lucas No. 21, cone drive, geared fd.  
6" horizontal Niles, table type.  
Bement-Miles 4" bar, table type.

24" & 36" Bullard, v. t. l.  
34" Colburn, 3-jaw chuck.  
42" Colburn, 2 swivel heads.  
72" Pond, friction feed.

#### DRILLS, MULTIPLE.

6-spindle Baush, 4" capacity.  
No. 43 Gardam 8-spindle, 1/2" cap.  
3-spindle No. 1 Avey ball bearing.

8-spindle Moline rail drill, 3" cap.  
10-spindle Baush multiple, 1 1/4" cap.

#### DRILLS, UPRIGHTS.

20" Baker, style "F".  
No. 1 Baker, standard.  
26" Barnes, all geared.  
20" Aurora, wheel and lever feed.  
20" Mechanics wheel and lever 2 sp.

24" Cincinnati, sliding head.  
32" Cincinnati, sliding head.  
34" Barnes, sliding head.  
40" Aurora, sliding head.

#### DRILLS, RADIALS.

2 1/2' & 2' Fosdick plain, cone drive.  
3' Dreses & Mueller, cone gear fd.  
4' Baush, radial.

4' Fosdick radial, gear drive.  
4' Pond heavy plain, cone drive.  
8' Niles.

#### DRILLS, SENSITIVE AND MULTIPLE.

10" sensitive plain, Myers.  
10" Barnes, friction.  
12" 4-spindle Barr, sensitive.  
4-spindle Pratt & Whitney sensitive.  
14" Foote-Burt, 2-spindle sensitive.  
14" Foote-Burt, 6-spindle sensitive.

14" Taylor & Fenn, sensitive, sgl. sp.  
15" Barnes, friction drive.  
6-spindle Kern, ball bearing.  
6-spindle Kern, with tapping attachment, ball bearing.  
8-spindle Leland, ball bearing.

#### GEAR CUTTERS.

26" Brown & Sharpe, plain spur.  
33" Gould & Eberhardt, spur.  
26" Gould & Eberhardt, spur.  
40" Flather, spur.

48x12 Gould & Eberhardt, spur.  
60" Gould & Eberhardt, spur.  
24" Fellows gear shaper.  
36" Fellows gear shaper.

#### HAMMERS.

400 lb. Morgan, single frame.  
2000 lb. single frame Bement-Miles.  
3300 lb. single frame Bement-Miles.

1500 lb. Bement Miles, 2 machines.  
600 ton steam hydraulic press, Alliance Machine Co.

#### GRINDERS.

No. 1 Leland & Falconer, wet tool.  
No. 2 Worcester drill grinder.  
No. 11 Brown & Sharpe, plain.  
6"x32" Norton plain grinder.

Nos. 200 & 210 Heald ring grinders.  
No. 3 LeBlonde univ. tool & cutter.  
No. 3 Oesterlein universal grinder.  
10"x36" Landis, plain grinder.

#### LATHES.

6"x30" Cataract bench lathe, complete with bench and all equip.  
11x4 Blount speed lathe.  
13x5 Blount speed lathe.  
10"x5' Pratt & Whitney, tool room lathe, complete.  
12"x5' Miami Valley, complete.  
12"x5' Hendey, tool room.  
13"x6' Willard compound rest.  
14"x6' Prentice, compound rest.  
14"x6' Prentice, rise and fall rest.  
14"x6' Hendey, taper attachment.  
16"x6' Flather, taper attachment.  
16"x6' Davis, compound rest.  
16"x6' LeBlond, compound rest.  
16"x6' L. & S. patent head, c. rest.  
16"x8' Flather.  
16"x8' Hendey, taper att., c. rest.  
16"x10' LeBlond, compound rest.  
20"x10' Bradford.

16"x10' Bradford, g. c. g., taper att., chuck for relieving att. and collet.  
18"x8' Fay & Scott, Flathers, Davis, Walcott & Wood, Reed and Bradford, compound rest.  
20"x12' Reed, compound rest.  
20"x12' Johnson.  
22"x12' Pond.  
22"x16' Pond.  
36"x20' Niles, triple geared.  
38"x24' Pittsburg, triple geared.  
39"x9' Roll lathe.  
50"x18' Fifield, c. r. triple geared.  
52"x36' Hewes & Phillips tri. gr. c. r. arranged for crankshaft turning.  
64"x43' Hewes & Phillips comp. rest, taper attachment, triple geared, arranged for crankshaft work.  
64"x43' Roach, c. rest, triple geared.

## SECOND-HAND MACHINERY

### Motch & Merryweather Machinery Co.,—Continued.

#### CENTERING MACHINES.

3" Binghampton.

#### MILLING MACHINES.

No. 13 Pratt & W. Lincoln type.  
No. 32 Kemp Smith, Lincoln type.  
No. 2 Brown & Sharpe, universal.  
No. 2½ Le Blond pl., all power feed.  
No. 3 Le Blond, a. p. f.

6" Winton, double spindle.

No. 2 Brown & Sharpe, pl., cone dr.  
No. 12 B. & S. Lincoln type.  
No. 13 B. & S. Lincoln type.  
No. 6 Whitney plain hand miller.  
No. 4 Blake & Johnson vertical.

#### PLANERS.

16"x16"x4' Hendey.  
22"x22"x4' New Haven.  
22"x22"x7' Gray.  
24"x8' Gray planer new.  
24"x24"x8' Powell.

28"x5' New Haven.  
30"x30"x10 Whitcomb.  
60"x18' Pond, double head.  
72"x24' Pond, double head.  
12"x26' Pond, four heads.

#### SHAPERS.

14" Steptoe, single geared.  
15" Hendey friction.  
18" Steptoe, single geared.  
20" Kelly, back geared crank.  
20" Smith & Mills, dbl. grd., crank.

22" Smith & Mills, shifting belt.  
24" Hendey, friction.  
24" Walcott, shifting belt.  
34" Gould & Eberhardt, crank.

#### SLOTTERS.

54" Hewes & Phillips.  
52" Hewes & Phillips.

30" Pond.

#### TURRET LATHES & SCREW MACHINES.

1" Pratt & Whitney, with cut-off rest and automatic chuck.  
3"x4" Brown & Sharpe turret.  
No. 2 B. & O., w. f., auto. chuck, (2).  
No. 2 W. & S., w. f., auto. chuck.  
No. 2 Bardons & Oliver, turret, pwr. feed to turret slide.  
No. 2 Brown & Sharpe, standard screw machine.

3"x36" J. & L. sliding hd. tur. lathe.  
14" Drees, wire fd. screw machine.  
24" Davis chucking machine.  
21" Gisholt turret lathe.  
No. 2 Foster pl. head turret lathe.  
1"x1" Acme screw machine.  
2"x24" Jones & Lamson flat turret lathe, cone head.  
24"x10" L. & S. screw machine.

#### AUTOMATICS.

Gridley automatic piston ring mch.  
14" late type Gridley.  
24" Gridley.  
3" Cleveland automatic.  
8" Acme automatic.

14" Cleveland automatic.  
14" Cleveland automatic.  
24" Cleveland automatic.  
6" Cleveland auto., standard model.

#### MISCELLANEOUS.

Band saw, wood, 36".  
Centering machine, 3" Binghampton.  
Centering mch., 6" Winton, 2 spdl.  
Cold saw, 50" Espen-Lucas.  
Cut-off mch., 24" Hurlbut-Rogers.  
Cut-off mch., 34" Hurlbut-Rogers.

Cut-off mch., 3" Pratt & Whitney.  
Disc grinder, 18" W. & P., dbl. end.  
Keyseater, No. 0 Baker.  
Keyseater, No. 0 Mitts & M., 3" cap.  
Keyseater, 18x1½ Morton.  
Shears, 36" Toledo, power, 1" cap.

### FOR SALE BY

**Chas. Molitor Machinery Co.,**

**215 S. Clinton St., Chicago, Ill.**

Arch press, 48", double crank, hvy.  
Broaching machine, No. 4 Lapointe.  
Drawpresses, Bliss, Ferracute, (4).  
Keyseater and slotter.  
Lathe, 16"x64" Walcott, heavy pat.  
Lathe, 20"x84" Rahn-Larmon.  
Lathe, 20"x10" Springfield.  
Lathe, 20"x10" Walcott.  
Lathe, 24"x14" Walcott.  
Lathe, 30"x26" Ames.  
Lathe, 33"x12" Prentiss.

Planers, 6' to 12', (3).  
Press, geared, Waterbury-F., 4" str.  
Press, arch, 30" Bliss.  
Press, notching, American Can Co.  
Radial drill, 32" Fostick.  
Screw mch., 1" No. 11 Garvin.  
Screw mch., 2" No. 324 Garvin, fric. hd.  
Screw mch., 24" Warner & Swasey  
No. 2, geared friction head.  
Shapers, 14" to 32" (8).  
Square shears, 1-16", 6-8'.

Tinners' rollers, brakes, shears, punch presses and compressors.  
100 other iron and woodworking machines, motors, etc.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Herman L. Winterer, • 908-910 Beach St., Philadelphia, Pa.**

#### PLANERS.

21"x21"x5' Hendey.  
25"x24"x6' Wood & Light.  
29"x29"x3' New Haven.

44"x44"x16' Niles.  
48"x48"x14' Gray.

#### MISCELLANEOUS.

Boring mill, horizontal, Fitchburg.  
3" bar.  
Boring mill, vertical, 30" Bullard.  
Large stock of Engine Lathes up to 52" swing.

Grinder, plain tool, No. 16 Landis.  
Grinder, universal, No. 1 Landis.  
Radial drill, universal, 8' Warren.

### FOR SALE BY

**Western Machinery Co., • 610 Baymiller St., Cincinnati, Ohio**

#### LATHES.

12"x4½' Sebastian.  
14"x6' Bradford, taper attachment.  
14"x6' Cisco, quick change.  
20"x8' Schumacher & B. q. c. chuck.

22"x8' Putnam, heavy, comp. rest.  
27"x12' Niles, compound rest, 1½" hollow spindle.  
27"x17' Putnam, c. r., blocks to 40".

#### MISCELLANEOUS.

Bolt cutter, 2" National, taps & dies.  
Radial, 2½' Hamilton, tapping att.  
Full line lathes, drills, shapers, milling machines, presses, chain blocks, grinders and other machinery.

Planer, 22"x22"x5' Putnam, fine condition.

### FOR SALE BY

**Frank Toomey, Inc., • 127 N. Third St., Philadelphia, Pa.**

#### LATHES.

38"x20' Fifield.  
30"x22' Bement-Miles.  
30"x18' Bement-Miles.  
27"x21' Pratt & Whitney, taper att.  
26"x17' Johnson, taper attachment.  
26"x12' Fifield.  
21"x 9' Lodge & Davis.  
18"x14' Schumacher & Boye.

18"x10' Schumacher & B., taper att.  
18"x 8' LeBlond, turret attach.  
18"x 8' Reed.  
16"x 6' Hendey-Norton, cone head, taper attachment.  
16"x6' Reed, taper attachment.  
14"x8' Hendey-Norton.

#### PLANERS.

60"x60"x14' Pond, two heads.  
60"x60"x14' Sellers, 4 heads.  
33"x33"x12' Woodward & Powell.

30"x30"x10' Bement-Miles, 2 heads.  
24"x24"x6' Putnam  
12" Moore crank planer.

#### SHAPERS.

20" Gould & Eberhardt.  
16" Smith & Mills.

16" American, back geared.  
12" Bement.

#### MILLING MACHINES.

36"x12' slab, heavy pattern.  
No. 3 Kempsmith plain.  
No. 3 Becker-Brain'd pl., table 12x42.

No. 1 Brainard plain, table 12x48.  
Pratt & Whitney plain, table 55x5.  
No. 6 Whitney hand millers, (4).

#### MISCELLANEOUS.

Bolt cutter, 1½" National.  
Boring mill, 72" Bickford, 2 heads.  
Boring mill, horiz., 48" Bement.  
Boring mill, 38" Niles, 2 heads.  
Boring & turn. mill, 48" Sellers, 2 hds.  
Card cutting presses No. 103, (5).  
Drill, 28" Currier & S., slid'g head.  
Hammer, steam, 350 lb. Bement-Miles, single frame.  
Hammer, steam, 3,500 lb. Bement-Miles, double frame.  
Hammer, board drop, 500 lb. P. & W.  
Dynamos, motors, engines and boilers.  
Wood-working machines both new and second-hand. Send for our stock books.

Internal grind. lathe, 16x5 Diamond.  
Pipe machine, 10" Bignall & K.  
Pipe machines, 3" and 6" Curtis & Curtis, hand power, (2).  
Presses, combined honing and wiring, No. 22 Adriance, (2).  
Pulley boring machine, 60" Harrington, upright.  
Shear, single end, 50" throat, 2" capacity, engine driven.  
Turret lathes 1½" and 2" Foster & K.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Marshall & Huschart Machinery Company,**

**Chicago**

**Indianapolis**

**St. Louis**

#### BOLT CUTTERS.

- |                           |   |
|---------------------------|---|
| 1" Acme, double head.     | 2" National, single head, motor driven, with motor. |
| 1" National, double head. |   |

#### BORING MACHINES.

- |  |  |
|--|--|
| Lucas & Gleim horiz., 2 1/2" spindle.              | 37" Baush vertical, 2 swivel heads, 4 chuck jaws.  |
| No. 2 Rockford horizontal.                         | 42" Bullard vertical, one swivel, one turret head. |
| 30" Baush vert., turret hd., 3-jaw ck.             | 52" Rogers & Hemphill, 2 swivel hds.               |
| 30" Bullard vertical, belt feed.                   | 48" swing Miles car wheel borer, for 36" wheels.   |
| 30" Bullard vertical, geared feed, thread cutting. |  |
| 34" King vertical, three-jaw chuck.                |  |

#### DRILLING MACHINES.

- |   |  |
|---|--|
| 2-sp. Kokomo hi-speed sensitive.                      | 19 1/2" Putnam upright, power feed.        |
| 2-sp. Rockford manufacturers gang.                    | 2 1/2" Rockford stationary hd. bk. grd.    |
| 3-sp. B. F. Barnes gang.                              | 24" Sibley & Ware, sta. hd., b. g. & p. f. |
| 4-spindle Foote-Burt gang.                            | 24" Mechanics, sliding hd., b. g. & p. f.  |
| 10-spindle Natco multiple, capacity ten 5-16" drills. | 32" Hamilton, sliding hd., b. g. & p. f.   |
| 12-spindle Western multiple, cap. 1".                 | 34" Lodge & D., slidg. hd., b. g. & p. f.  |
|   | 42" Barnes, sliding hd., b. g. & p. f.     |

#### RADIAL DRILLS.

- |                                     |  |
|-------------------------------------|--|
| 2 1/2" Gang, plain, swinging table. | 4 1/2" arm Alfred Box, plain.          |
| 36" Bickford plain, cone drive.     | 5" Western full univ., gear box drive. |

#### GEAR CUTTERS.

- |   |   |
|---|---|
| 18" Brainerd, spur and bevel.                   | 36" x 10" Gould & Eberhardt patent, vertical cutting type, spur gear. |
| 22" Gould & Eberhardt, spur and bevel.          | 30" Flather, spur gear.   |
| 30" x 7" Gould & Eberhardt new type, spur gear. | 36" Fellows gear shaper.  |
|   | Norris 4-spindle multiple.  |

#### GRINDERS.

- |   |  |
|---|--|
| Style PN Yankee motor-driven drill grinder. | No. 14 Besly disc grinder, size 14-30 G. |
| No. 8 Besly disc grinder.                   | No. 6 Rivett precision grinder.          |
| 10" x 34" Thompson, universal.              | No. 1 Cincinnati cutter grinder.         |

#### ENGINE LATHES.

- |  |   |
|--|---|
| 9" x 24" Barnes, with chuck.   | 18" x 6" Lodge & Davis, r. l. rest.                                     |
| 13" x 6" Sebastian.  | 18" x 8" Lodge & Shipley, q. c. g.                                      |
| 14" x 6" Lodge & Shipley, q. c. g.   | 18" x 15" Whitcomb-Blaisdell, comp. rest, 3-step cone, dbl. back gears. |
| 14" x 6" Whitcomb-B., with taper.  | 20" x 8" Lodge-Davis, with chuck, c. r.                                 |
| 14" x 6" Reed, taper, r. and f. rest.  | 20" x 10" Flather, compound rest.                                       |
| 15" x 6" Von Wyck, compound rest.  | 22" x 16" Pond, compound rest.  |
| 16" x 6" Blaisdell, plain rest, taper attachment, chuck.                     | 25" x 20" Sellers, compound rest.                                       |
| 16" x 8" American tool room, taper att., relieving att., draw-in chuck, etc. | 28" x 14" Star, compound rest, 4-step cone.                             |
| 18-21-3" x 5" Putnam, compound rest.   | 36" x 40" Niles, triple geared, compound rest, bed 2-sections.          |
| 18" x 6" American, 5-step cone.  |   |

#### TURRET LATHES.

- |   |                     |
|---|---------------------|
| 12" Foster & Kimball, plain head, double cut-off. | 21" Gisholt, heavy. |
| 14" Garvin, with pan, 1 1/2" hole in spindle.     | 24" Conradson.      |
|   | 42" New Haven.      |

#### MILLING MACHINES.

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| No. 3 Owen plain.                   | No. 5 Kempsmith plain, cone drive.  |
| No. 2 Cincinnati plain, cone drive. | Newton duplex.                      |
| No. 4 Cincinnati plain, cone drive. | 22" x 22" x 12" Newton slab miller. |

#### PLANERS.

- |                                      |                           |
|--------------------------------------|---------------------------|
| 22" x 22" x 5" Pond, parallel drive. | 30" x 30" x 10" Gleason.  |
| 24" x 24" x 6" New Haven.            | 36" x 36" x 10" American. |
| 30" x 30" x 8" American.             |                           |

We have many others. Write us for what you need.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.**

#### RADIAL DRILLS.

Prentice Bros. 5' and 6' radial drills, equipped with belt or motor drive, \$450.00 and \$475.00 each.

#### LATHES.

32"x10' Putnam, complete.  
28"x12' Blaisdell, complete.  
24"x12' Reed, complete.  
24"x12' Lodge & Shipley.

22"x14' Bullard, complete.  
16"x8' Greaves-Klusman, speed box.  
14"x7' Lodge & Shipley, complete.

#### TURRET LATHES AND SCREW MACHINES.

40" Gisholt turret lathe with standard tool equipment; P. & W. turret lathe with bar equipment; 24" Davis chucking lathe; No. 2 W. & S., and other turret lathes and screw machines.

#### BORING MILLS.

44" Rodgers & Hemphill vert. with 30" Bullard vert.; 28" with 2 hds. two heads, all with speed boxes.

#### MISCELLANEOUS.

Drill presses, all sizes.  
Gear shapers, 36" Fellows.  
Grinder, universal, Oesterlein.  
Grinders, B. & S. and Landis, modern.  
Milling machines, vertical.

Milling machines, plain and univ.  
Planers, all sizes.  
Punch presses.  
Punch and shr. comb., No. 4 Perkins.  
Steam hammers, etc., etc.

These machines are modern and late type. Send for our list.

### FOR SALE BY

**Wm. C. Johnson & Sons Machinery Co.,**

**210-212 Washington Ave.,**

**St. Louis, Mo.**

#### LATHES.

14"x 8' Von Wyck, quick change.  
14"x 8' American, quick change.  
14"x12' Lodge & Davis.  
18"x 8' Rahn & Carpenter.  
18"x10' Porter.

20"x 8' Whitcomb-Blaisdell.  
80"x10' centers, heavy turning.  
32"x10' Bradford.  
32"x19' American, quick change.

#### SHAPERS AND PLANERS.

24"x24"x6' Lodge & Davis.  
24"x24"x8' American.  
24"x24"x8' Lodge & Davis, 2 heads.  
28" American, back geared.

32"x32"x14' Niles.  
36"x36"x8' Hamilton.  
44"x44"x14' Niles.

#### DRILLING MACHINES.

20" Barnes.  
28" American, sliding head.

32" Aurora, sliding head.  
4' arm Fosdick.

#### BORING MILLS.

34" Gisholt, turret head.  
36" two heads.  
72" Niles, one head.

No. 1 Barret boring machine.  
72" Niles Corliss engine cylinder boring machine.

#### AIR COMPRESSORS.

6x6 belted.  
8x8 belted.  
9x9x9 steam driven.

10x10x10 steam driven.  
12x12x14 steam driven.  
500' and 1,000' steam driven.

#### MISCELLANEOUS.

Angle shear, dbl., size B, L. & A.  
Bending rolls, No. 14, cap. 98".  
Bolt cutter, 14", double head.  
Brake, No. 16 Robinson, cap. 16'.  
Bulldozer, No. 4 Williams-White.  
Grinder, 10"x72" Landis.  
Grinders, surface, No. 2 Brown & S.  
Hammer, 100 lb. Bradley.  
Hammer, steam, 350 lb.  
Hammer, steam, 800 lb.

Jack, hydraulic, 50 ton.  
Jacks, simplex, 12 and 15 ton.  
Miller, No. 34 Fox.  
Pipe machine, 4" Borden.  
Pulley lathe, 30" Stevens.  
Punch press, heavy, dbl. housing.  
Screw machine, automatic 9-16".  
Squaring shear, cap. 3" plates, 6' knife, 25" gap, with multiple punching dies.



## SECOND-HAND MACHINERY

### FOR SALE BY

**Badger-Packard Mchy. Co., 72-74-76 W. Water St., Milwaukee, Wis.**

#### LATHES.

14"x6' Robbins lathe, hollow spindle, plain rest.....	\$ 160.
16"x6' Fay & Scott lathe, hollow spindle, compound rest.....	225.
24"x12' Lodge & Davis lathe, hollow spindle, compound rest.....	350.
24"x14' Bradiord lathe, compound rest, solid spindle, with chuck and friction countershaft.....	400.
36"x26' New Haven lathe, compound rest, power cross feed, solid spindle, power feed on compound rest.....	650.
48"x16' Putnam lathe, compound rest, solid spindle, power cross-feed.....	950.
50"x20' New Haven lathe, compound rest, solid spindle, power cross feed, power on compound rest.....	900.

#### PLANERS.

24"x24"x6' Lodge & Davis planer.....	\$ 400.
26"x24"x8' Merrill planer.....	275.
60"x60"x16' Niles planer.....	1100.

#### MISCELLANEOUS.

Bolt cutter, 3" National No. 6, taps and dies.....	\$ 200.
Drill, portable, No. 4 Dallett.....	60.
Press, 150-T Eimes, 14' bars and cross head and short bars.....	200.
Slotter, 12" stroke, Putnam.....	450.
Twist drill grinder, Yankee.....	40.
Water grinder, 16" Diamond.....	35.

### FOR SALE BY

**A. D. White Machinery Co., - 108-114 N. Jefferson St., Chicago**

#### LATHES.

13"x 5' P. & W., taper and chucks.....	24"x10' Lodge & Shipley, q. c.
15"x 8' Von Wyck.....	28"x12' Fifeid.
16"x 6' Fay & Scott.....	28"x25' Putnam.
18"x 8' Walcott.....	32"x10' Bradford.

#### DRILL PRESSES.

13" Barr sensitive, (3).....	32" Bickford, sliding head.
20" Barnes.....	36" Bickford radial.
28" Bickford, sliding head.....	36" Mueller radial.
30" Kerkhoff, sliding head.....	40" Aurora radial.

#### PLANERS.

24"x 6' Pond.....	32"x 8' Betts.
26"x 8' Gray.....	35"x12' Niles.
28"x 8' Gray.....	38"x10' Gray.

#### SCREW MACHINES AND TURRET LATHES.

16" No. 3 Pearson screw machine.....	No. 2 Garvin screw machine.
No. 2 1/2 P. & W. screw machines, (2).....	12" Dreses turret lathe.
1/2" Cleveland automatic.....	22" Lodge & Shipley turret lathe.
1/2" Pratt & Whitney automatics, (4).....	21" Gisholt, big bore type.

#### PUNCH PRESSES AND SHEARS.

No. 2C Ferracut.....	No. 45 Crosby, open back.
No. 16 Wold.....	No. 3 Ferracut, double action.
No. 4 1/2 R. & K., o. b. l.....	42" Niagara power sq. shear, 14 ga.
No. 5 Niagara, o. b. l.....	52" Niagara power sq. shear, 18 ga.

#### MISCELLANEOUS.

Bolt cutters, National 1 1/2 & 3" s. hd.....	Miller, No. 9 Kempsmith plain.
Blowers, No. 1/2 Garden City, (2).....	Miller, No. 24 Oesterlein univ.
Grinder, cutter, H. G. Barr.....	Miller, No. 6 Grant Mfg. Co.
Grinder, Yankee drill, style "B".....	Pipe machine, 2" Jarecki.
Grinder, disc, No. 1-B Besly.....	Shaper, 15" Kelly.
Hammer, power, 50 lb, Dienelt.....	Shaper, 16" Smith & Mills.
Keyseater, 16" Morton, portable.....	Shaper, 24" Gould & Eberhardt.
Miller, No. 12 Garvin plain.....	Tapper, No. 2 Garvin horizontal.

**In replacing our manufacturing equipment, we find the following first class Used Machine Tools, which we offer at attractive prices:**

### **LATHES**

- 16"x 8' Reed.
- 17"x 6' Gray.
- 18"x 8' Lodge & Shipley, single pulley driven. (2).
- 20"x 8' Lodge & Shipley, q. c. g.
- 20"x 10' Lodge & Shipley, q. c. g.
- 20"x 12' Lodge & Shipley, q. c. g.
- 24"x 8' Lodge & Shipley, q. c. g.

### **SPECIAL LATHES**

- No. 3 Lodge & Shipley Rapid Reduction Lathe.
- 14"x 6' Towsley Speed Lathe.

### **METAL SAWS**

- Globe Power Hack Saw, 8" cap.

### **MISCELLANEOUS MACHINES**

- One Marion Double Grinder.
- One Marion Double Grinder on stand.
- One Diamond Combination Grinding and Polishing Stand.
- One Sturtevant Blower, Diameter of outlet 24"
- Universal Swivel Table for Radial Drill.
- Brown & Sharpe Grindstone Frame for 5"x36" Stone.
- One Mueller Grindstone Frame for 4"x27" Stone.
- One 12"x40" Mumford Molding Machine.
- One Ohio Planer, 24"x24"x12' with two heads on cross rail.

**The Lodge & Shipley Machine Tool Co.**

**CINCINNATI, OHIO, U. S. A.**

**During the dull times incident to the European war, we are taking the opportunity to rearrange and renew our shop equipment. We therefore offer the following machine tools, all in first-class running order:**

- 1-17"x 6' Standard Engine Lathe with compound rest and box turret on carriage.
- 1-17"x 6' Standard Engine Lathe with compound rest.
- 1-17"x 6' Standard Engine Lathe with plain rest.
- 1-17"x 6' Standard Engine Lathe, compound rest interchangeable with turret on carriage.
- 1-17"x 6' Standard Engine Lathe, 3 Step Cone Friction Double Back Gear.
- 1-17"x 8' Standard Engine Lathe, 3 Step Cone Friction Double Back Gear.
- 1-17"x 10' Standard Engine Lathe with compound rest.
- 1-17"x 12' Standard Engine Lathe with compound rest.
- 1-24" raised in sand to swing 27½"x 10' Standard Engine Lathe with compound rest.
- 1-25"x 10' Bradford Engine Lathe with compound rest.
- 1-28-36"x 14' New Haven Engine Lathe not screw cutting.
- 2-2"x 24" Jones & Lamson (6 head) Flat Turret Lathes.
- 1-30"x 30"x 8' S. H. Smith-Silk Planer.
- 1-36"x 36"x 10' D. H. Pond Planer.
- 1-42"x 42"x 12' Wheeler Planer, one head.

**THE GREAVES-KLUSMAN TOOL CO.,**

**Cincinnati, Ohio**

## Receiver's Sale

**Machine Tool Equipment, Stock, Supplies, etc., of**

### **THE POPE MFG. COMPANY**

Located at the plants of the above concern,  
**HARTFORD, CONN.**

Consisting of lathes, gear cutters, grinders, drills, milling machines, boring mills, presses, profiling machines, screw machines, drop shop equipment, metal and wood working equipment, motors, compressors, and many other kinds of machinery too numerous to mention, together with about 200 tons of steel, small tools, shop supplies, etc.

*Write at once for Catalog of Machinery, and let us have your inquiries before ordering elsewhere. We can save you money.*

**George Pope, Receiver, Hartford, Conn.**

## For Sale

### **Putnam Planer.**

48"x48"x20', Two Heads on Cross Rail.

### **Radial Drill.**

4' Cincinnati-Bickford Plain, Single Pulley  
Drive through speed box.

### **Large Plain Grinder.**

Landis 30" Swing, 150" between centers.

### **Engine Lathe.**

36"x14' Fifield, raised to 48", Comp. Rest.

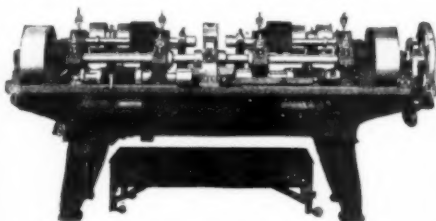
### **Chandler & Farquhar Company**

419-425 Atlantic Ave., Boston, Mass.

# **The Productive Capacity of "New Britain" Automatics**

**Of the Single Head Type  
Is 3 to 5 Times Greater**

than that of the hand turret lathe in the machining of castings, forgings and second operation rod work. They automatically drill, face, tap, thread, etc., in the time of the longest single operation.



## **Our Double Head Automatic**

handles pieces requiring operations on both ends in half the time required if each end were finished separately, and the operations performed on the two ends do not have to be the same. This again multiplies productive capacity by two. There is one more chucking section than there are tool spindles, providing for loading and unloading while the machine is in operation. The design and construction insure perfect accuracy.

*Send sample for production estimate, and let us describe the machine best adapted to your purpose.*

**The New Britain Machine Co.**

**60 Chestnut St., New Britain, Conn.**

